PASSENGER PROGRESS ANNUAL NOVEMBER 17, 1945 NOVEMBER 17, 1945 SERIAL ACCORD Founded in 1856



Six C. B. & Q. units average 1,249,498 miles before first major overhaul!



That's a record on any man's railroad — one that would have been impossible before the advent of General Motors Diesel locomotives.

For these units are all General Motors Diesels – 2000 h.p. each; three without cabs.

They have been pooled in operation on the Exposition Flyer, Denver-Chicago; the Fast Mail, Chicago-Lincoln, and the Aksarben Zephyr, Lincoln-Chicago.

It is only lately that such records have been available. It takes time to pile up mileage like that. And while records are impressive — it is day-by-day, year-by-year, fast, dependable operation on regular schedules that count. And General Motors Diesels deliver that!

ADD SECURITY TO VICTORY . BUY MORE VICTORY BONDS

YOUTHFUL IN STAYING POWER · VETERANS FOR PERFORMANCE

GENERAL MOTORS
LOCOMOTIVES

ELECTRO-MOTIVE DIVISION

GENERAL MOTORS CORPORATION

LA GRANGE, ILL.

10 GON PORTEK 650 H.P. DIESEL ELECTRIC SWITCHER

TWIN-POWERED FOR DOUBLE AVAILABILITY

Built for heavy yard, terminal and belt-line work, this newest 100-ton 650 horse power PORTER is in every sense a railroad man's switcher. Powered by two complete Diesel-Electric Units, it is equal to the toughest switching job, yet is versatile enough to be used for light work. Its two independent power plants insure constant availability and unlimited operating range. Complete specifications on request.

PERFORMANCE CURVE

ONLY PORTER BUILDS A COMPLETE LINE OF LOCOMOTIVES

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price \$6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 119, No. 20.

K. PORTER COMPANY, INC.

PITTSBURGH

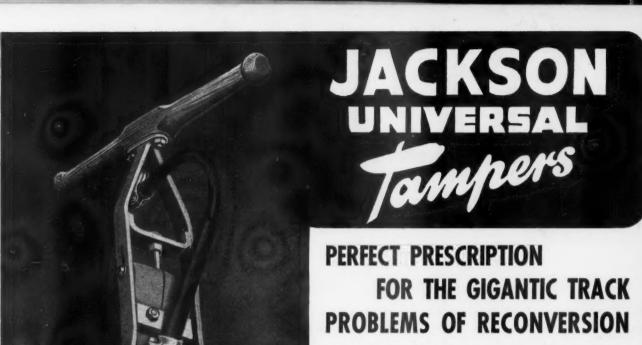
MINER

The MINER CLASS L-4 SAFETY LOCKING PIN securely locks the trucks to the body of the car. Keeping the trucks under the cars is known to prevent telescoping in the event of collision, and, should derailment occur, the lower center of gravity of the car with locked trucks materially lessens the danger of overturning.

The MINER CLASS A-4-XB DRAFT GEAR is recommended for modern, light passenger cars and meets the demand for minimum weight without sacrificing capacity, smooth action, endurance or column strength. Vibration and surging at varying speeds of trains are prevented by the instantaneous reactivity of the initial spring movement throughout its range of capacity.

The MINER CLASS B-18-X BUFFER in combination with the A-4-XB gear provides ample resilience for efficient and smooth operation of passenger trains. The high capacity of the buffer supplements the draft gear action in protecting long shank couplers and car structure when cars are subjected to extreme buffing stresses.

W. H. MINER, INC



Never in the history of American Railroads has there been such an urgent need for maintenance equipment capable of doing the job better and faster. Roadbeds that will stand up under unprecedented tonnage, capable of sustaining the higher speeds imposed by competition are a re-

conversion must! And to that end JACKSON Universal Tampers offer a tremendous advantage. They're exceptionally fast and firmly compact all ballasts, in all lifts, with a minimum of labor and maximum uniformity — the only tie tampers with the highly advantageous vibratory action. Let us demonstrate to you why you can expect, and will get, more and better work from JACKSON Universal Tampers and Power Units.

JACKSON WS-4 POWER PLANTS

mounted on light, strong outriggers with insulated roller. Outrigger is recommended where traffic conditions permit, for use on track in spot tamping and similar work where Power Plant must be moved considerable distances. One man can easily remove Power Plant with Outrigger from track in a few seconds.

ELECTRIC TAMPER & EQUIPMENT CO., Ludington, Michigan

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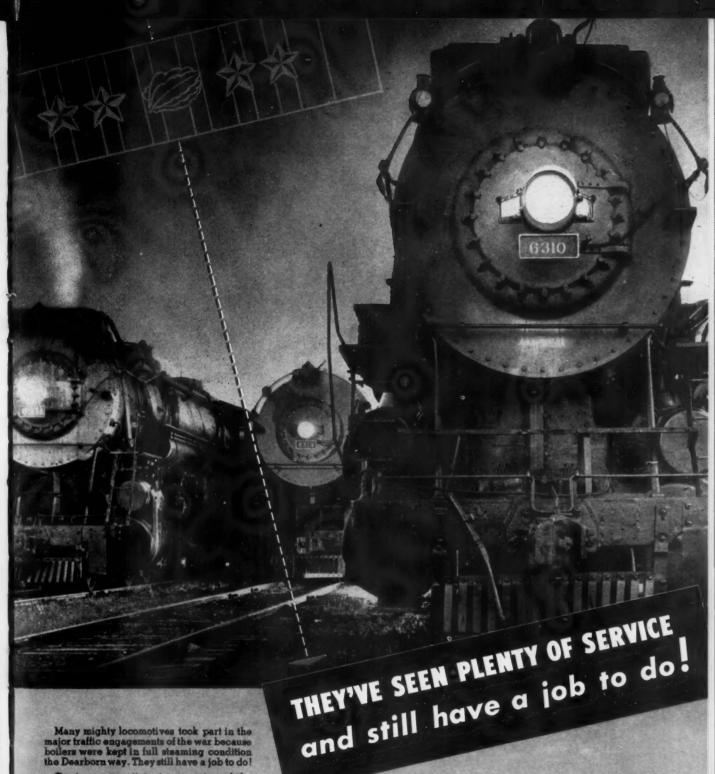
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TRACK RSION

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RAILWAY AGE



Many mighty locomotives took part in the major traffic engagements of the war because boilers were kept in full steaming condition the Dearborn way. They still have a job to do!

Carriers now anticipate an easing of the freight load, but they look for an even heavier passenger jam during months of military demobilization. Locomotives must still be available for 'round-the-clock duty, turning and doubling back without costly, time-consuming delays for boiler washouts and repairs.

Railroads now employing Dearborn water treatment and service find locomotive shoppings for boiler repairs caused by scale, corrosion, and foaming are eliminated. The latest Dearborn treatment consists of anti-scale and amine anti-foam finishing-treatment used together. Both are proportioned at wayside stations in the same tanks, with existing equipment.

Call upon the nearest Dearborn engineer to show you how Dearborn can keep your locomotives pounding over the rails through many water districts... with trouble-free boilers.

DEARBORN CHEMICAL COMPANY

310 S. Michigan Ave., Chicago 4 807-15 Mateo St., Los Angeles 205 E. 42nd St., New York 2454 Dundas St., West, Toronto



WATER TREATMENT AND ENGINEERING SERVICE



"light touch" OF PLYMETL

Transforms Deadweight into Greater Passenger Comfort

Approximately 3,000 square feet of Haskelite Plymetl was used for the partitions in the first Duplex Roomette which Pullman-Standard built. Plymetl was also used for interior doors.

The Duplex Roomette is an achievement in space conservation. It was designed to furnish passengers comfortable, convenient, luxurious travel at exceptionally low cost. Here, Plymetl's light weight combined with high strength transformed deadweight into passenger comfort and satisfaction.

Check these figures:

Plymetl partitions saved 9,300 lbs. in a single Duplex Roomette over the standard hollow steel partition. If, instead of Plymetl, hollow-aluminum partitions had been used, the weight of the car would have been increased by about 1500 lbs.

For your new cars or for the reconditioning of your older type coaches SPECIFY PLYMETL.



Phymetel

HASKELITE MANUFACTURING CORPORATION

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Grand Rapids 2, Michigan

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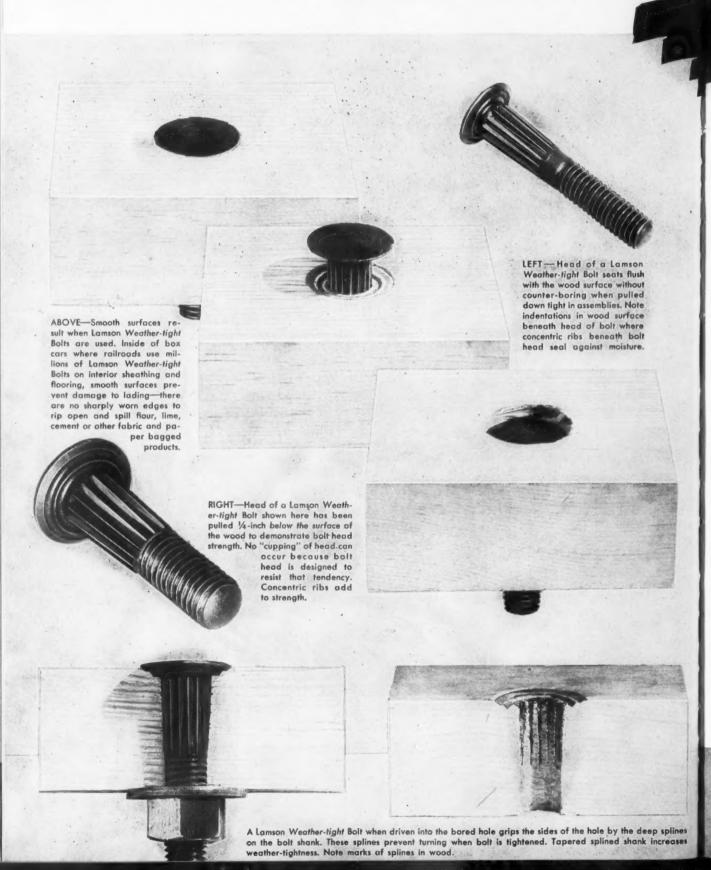
Detroit

Cleveland

St. Louis

Canada: Railway & Power Engineering Corporation, Ltd.

Buy a more expensive bolt



...AND REDUCE COSTS? YOU CAN DO IT WITH LAMSON WEATHER-TIGHT BOLTS!

A large manufacturer of skids had always used Carriage Bolts in construction of his skid platforms, and since "skids are skids", no one asked for a better skid platform. And then they experimented with Lamson Weather-tight Bolts—and built a better skid platform! With the result that comments began to come in from customers—complimentary comments—few of whom realized that the only alteration made in the "better" skid platform was the bolt used in its assembly! Nothing else needed change! Nothing else was changed!

Costs of previous construction and Lamson Weather tight Bolts were compared—and the assembly with the new Lamson Weather-tight Bolt at a slightly higher price proved to have the lowest final costs because of the faster assembly possible. No counterboring was needed. This user has completely standardized on Weather-tight Bolts.

Another user of Weather-tight Bolts, builders of intricate, carefully made speed-governing devices, changed over to Lamson Weather-tight Bolts and improved the appearance and sturdiness of their product, and discovered also that they had reduced costs! Now they too have standardized on Lamson Weather-tight Bolts.

There are more such instances. Some were closely identified with war production. All users' experience show advantages from application of this new kind of bolt for wood assemblies.

You may want to know more about this new bolt when you re-design if you use wood. Remember, the head of the Lamson Weather-tight Bolt sets flush with the wood surface, needs no counter-boring. Under the head, two concentric, annular V-shaped ribs compress wood fibers—and seal the head against seepage of moisture from beneath the head when exposed to weather. The shank of this bolt has deep tapered splines, that present greater gripping surfaces, avoid splitting the board, and prevent bolt from turning in the hole when nut is applied. The shank fits the hole like a cork in a

bottle—excluding entrance of moisture. Made in %16" to ¾" diameters, any length. Ask for further details and samples.

U. B. Patent No. 2066688

THE LAMSON & SESSIONS COMPANY, General Offices, Cleveland, O. Plants at Cleveland and Kent, Ohio; Chicago and Birmingham



"BOLTS, NUTS & SCREWS"-1944 REVISION. Cloth bound. Limited edition, 180 pages of technical, practical information. Sent prepaid for \$1.00-cash or check must accompany your order.

"BOLTS ARE IMPORTANT!"—24-page booklet of currently useful information for buyers of headed and threaded products, and describing Lamson & Sessions' specialty fastenings which have wide industrial applications—nous, and in the post-war period. Sent gratis.

"THE LAMSON BLUE BOOK"—is our standard Catalog of standard products excepting our Aircraft products. Sent gratis.

"SIMPLIFIED STOCK LIST"—Of bolts, nuts and screws, conforming to latest revisions of the Office of Price Administration, and of great value in showing you in what ratio quantities of various standard products are kept in stock for deliveries, by your jobbers and in our own (and other bolt manufacturers') warehouse stocks. Sent gratis.

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THE LAMSON & SESSION	S COMPANY - 1971	West 85th Str	set . Cleveland 2, Ohio
			outs and Screws (\$1.00) Simplified Stock Sizes
Send information on Bolts	☐ Cap Screws an ☐ Machine Screw	d Set Screws	€ Cotters
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Employed by (Name	of Company)		
Street Address	NOTE OF THE PROPERTY OF THE PR		
City and State	No. 1916—Copy	right 1945—Th	e Lamson & Sessions Co.

LAMSON & SESSIONS

BOLTS . . NUTS . . COTTERS . . CAP SCREWS . . SPECIALS

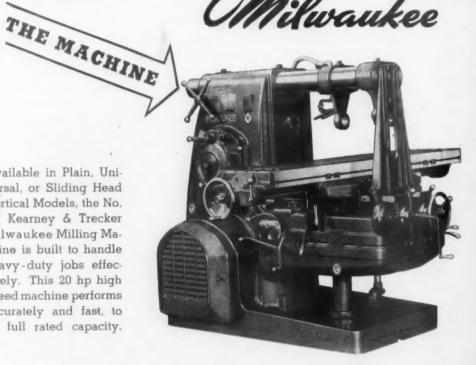
Your Jobber Stocks the Lamson Line



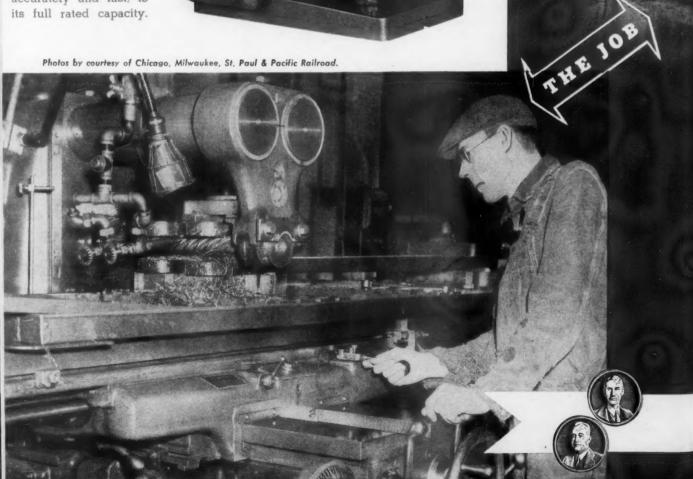
KEARNEY & TRECKER

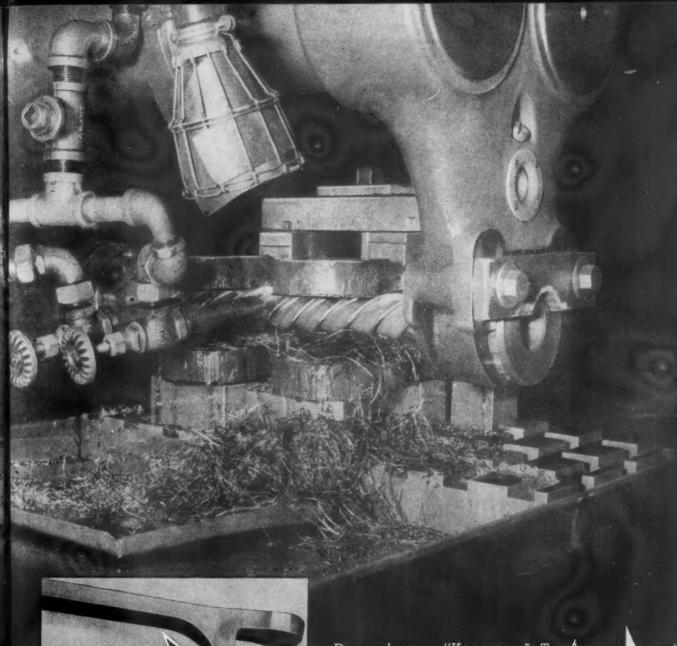
Milwaukee

Available in Plain, Universal, or Sliding Head Vertical Models, the No. 5H Kearney & Trecker Milwaukee Milling Machine is built to handle heavy-duty jobs effectively. This 20 hp high speed machine performs accurately and fast, to its full rated capacity.



Photos by courtesy of Chicago, Milwaukee, St. Paul & Pacific Railroad.







In this operation at the Milwaukee shops of "The Milwaukee Road", this No. 5H Kearney & Trecker Plain Milling Machine mills the fork end of two eccentric rods simultaneously... a tough job—rough and finish milling chromenickel steel (hardness, 275 Brinell; tensile strength, 110,000 psi). Excess stock in slot is torch cut. Rough milling removes about % stock... finish milling removes % to % ... using a 1% diam, high-speed steel helical mill.

Depend on a "Kearney & Trecker Milwaukee" to mill tough jobs! Rugged construction, ample range, and accuracy assure the best in milling machine performance, whether it's a standard model No. 5H Plain, or a specially designed attachment for a standard machine, or a special purpose machine designed for a specific job. Standard Kearney & Trecker Milling Machines range in power from 3 hp to 50 hp. Special machines are designed to fulfill special requirements.

Write to Dept. 52 for literature.

KEARNEY & TRECKER CORPORATION

MILWAUKEE 14, WISCONSIN

Milwaukee Machine Tools



NEW YORK CENTRAL'S BUDD 127 STEEL

STAINLESS to

Puts the RIGHT BEARING RIGHT PLACE

hese are among the first railway cars to hese are among the first railway cars to the built in the huge Bustleton Plant of the The journal boxes and bearings used comthe Journal boxes and low weight with rug, bine compactness and Live weight with rug, Edward G. Budd Mfg. Co. bine compactness and low weight with ruggedness and dependability
gedness and dependability
gedness and dependability gedness and dependability—characteristics.

Which are essential for efficient operation. Look to Signal bearing designs BEST INDUSTRIES, INC., PHILA. 34. PA. railway journal bearing designs.

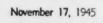
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BUILT

CARS

PASSENGER

ske-equipped



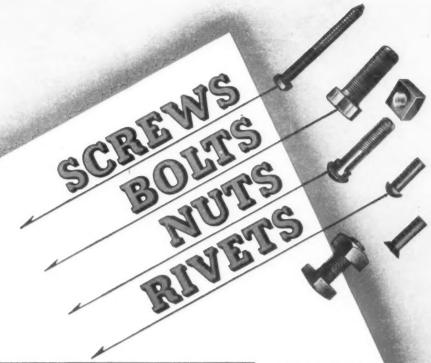
JOURNAL TOXES & BEARINGS



ECONOMY, UNIFORMITY, SECURITY USE INDUSTRIAL







These factors simplify your design and manufacturing problems

KNOWN PROPERTIES OF JOINTS

The strength of riveted and bolted joints under various types of loading can be accurately calculated from established engineering data, and can be inspected to established standards. This is a matter of considerable importance to the designer and fabricator, as it means economy of materials and confidence in the structure.

STANDARDIZED FOR SIMPLICITY

Fasteners manufacturers provide an extensive variety of standardized products for your use. Sizes, types, threads, materials and other characteristics meet established standards, so that your design, fabrication and purchasing problems are simplified.

VARIETIES FOR ALL NEEDS

Within the scope of standardized fasteners are some 400,000 items (types and sizes), giving ample choice to meet your requirements. But where a special design is desired, special fasteners can be provided for individual needs.

Throughout industry, the economy, uniformity and security of industrial fasteners has led to their widespread adoption—and assures their continued use. Firmly holding the structural members of our modern skyscrapers . . . fastening together in precise arrangement the delicate parts of compact instruments . . . giving dependable structural strength to airplanes . . . providing fast and economical assembly of machinery and equipment—modern industrial fasteners meet the challenge of speed, economy and dependability.

AMERICAN INSTITUTE OF BOLT, NUT AND RIVET MANUFACTURERS
1550 Hanna Building · Cleveland 15, Ohio

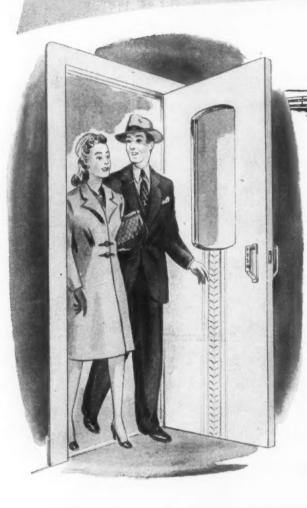




Write for FASTENERS, the free, factual periodical on modern screws, bolts, nuts, rivets,

automatic

Open and Close Heavy



ONVENIENCE for passengers is a must in this highly competitive business of postwar travel.

You're providing new luxurious coaches and compartment cars, comfortable lounges and fine diners—but are you making these attractions easily accessible? Are you streamlining the heavy end doors?

End doors, of either the swinging or sliding type, equipped with the new N.P. operators, open automatically with hardly more than a light touch. These new N.P. operators provide unusual

NATIONAL







THE WORLD'S LARGEST BUILDER OF DOOR CONTROL EQUIPMENT FOR MASS

TRA

END DOOR OPERATORS

Doors Easily and Safely

features such as quick release, smooth operation, instant reversing and safety slow latching. They're timed to match the movement of passengers and to prevent unnecessary loss of conditioned air.

A good deal of research has gone into developing these new automatic N.P. operators, and a variety of mechanisms

have been studied, both in the N.P. laboratory and in actual use on rail-roads operating under varying conditions.

Just furnish us the specifications of your cars, either new or old, and we will recommend the correct N.P. equipment. Passengers will surely thank you for streamlining the heavy end doors.



OUTSTANDING FEATURES OF THE NEW N.P. END DOOR OPERATOR

☆ Combination opener and closer with safety control ☆ Quick latch release ☆ Correctly timed action ☆ Smooth opening and closing without pressure build-up ☆ Instant reversing action ☆ Safety slow latching ☆ Available for either swinging or sliding doors ☆ Applicable to both existing and new equipment.

PREUMATIC COMPANY

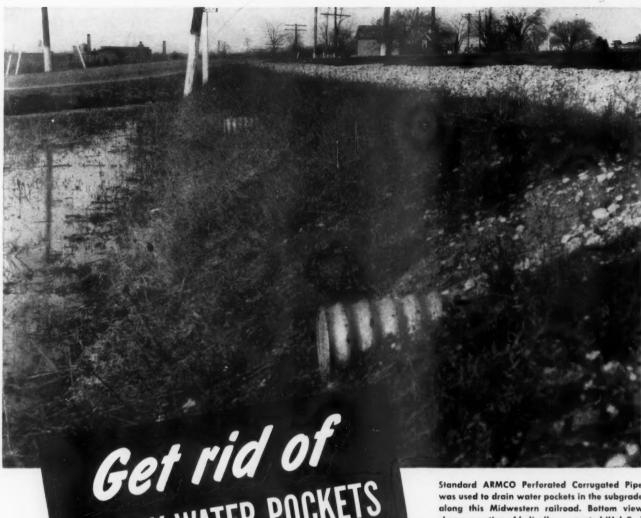


TRANSPORTATION VEHICLES

- New York, N. Y.
- Rahway, N. J.
- Chicago, III.



S



COSTLY WATER POCKETS THIS EASY, SURE WAY

Standard ARMCO Perforated Corrugated Pipe was used to drain water pockets in the subgrade along this Midwestern railroad. Bottom view shows a section of helically corrugated (Hel-Cor) Perforated Pipe also used for subdrainage.

When water pockets in your roadbeds cut deeply into maintenance budgets, it's wise to put Armco Perforated Pipe on the job.

The use of this sturdy perforated pipe for drainage of pockets assures a

stabilized subgrade and permits normal maintenance of the track. Naturally your best insurance is to install this durable galvanized pipe when the roadbed is constructed. But if water pockets have formed in your present roadbeds, proper use of Armco Perforated Pipe will give you quick, efficient drainage.

CARRIES HEAVY LOADS, HIGH SPEEDS

The flexible, corrugated metal design and strong joints resist crushing and disjointing. Heavy loads, high speeds, and severe frost heaving will not affect the system.

An Armco engineer will gladly give you complete information about Armco Perforated Pipe. Write your nearest Armco Drainage & Metal Products, Inc., Office or the executive offices of the company, 2911 Curtis Street, Middletown, Ohio.



ARMCO DRAINAGE & METAL PRODUCTS, INC.

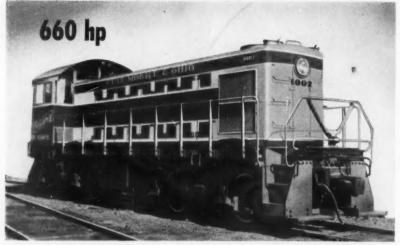
ALCO-G.E. DIESEL-ELECTRICS
POWERTHAT EARNS

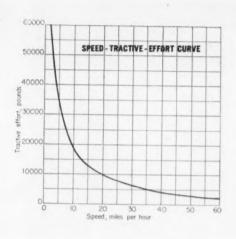


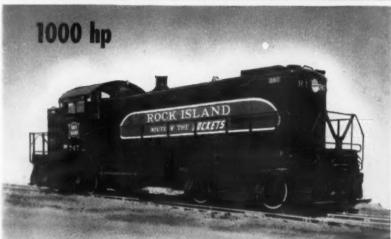


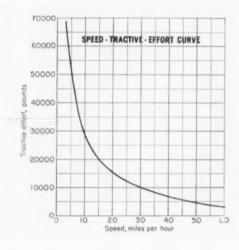
AMERICAN LOCOMOTIVE and GENERAL ELECTRIC

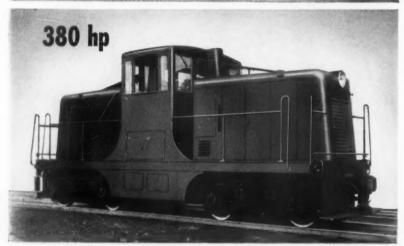
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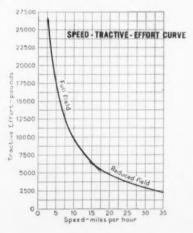














AMERICAN LOCOMOTIVE

GENERAL SPECIFICATIONS

660 HP		
Starting Tractive Effort (at 30% at	dhesion)	 .59,700 1
Minimum Radius of Curve (locomo	tive alone)	 50 f
Engine-one, six-cylinder, vertical,	four-cycle	 660 h
Motors—single-reduction, gear drive Maximum speed restriction		
Driving wheels — Number		
Wheelbase — Each truck (rigid) Locomotive truck centers		
Weight — Total locomotive On drivers		
Over-all Locomotive Dimensions		
Height		
Width		
Supplies (total capacity)		
Lubricating oil		
Fuel oil		
Sand		

GENERAL SPECIFICATIONS

1000 HP	STANDARD SWITCHER	
Starting Trac. Effort (30% adhesion).	69,000 lb	69,000 lb
Max. Radius of Curve (loco, alone)	50′	100'
Engine-one, 6-cyl., supercharged	1000 hp	1000 hp
Motors—single-reduction, gear drive Maximum speed restriction		
Driving Wheels-Four pairs; diameter.	40"	40"
Wheelbase—Each truck (rigid) Locomotive truck centers	30' 6"	9' 4"
Weight-Total-(all on drivers),	230,000 lb	. 230,000 lb
Over-all Locomotive Dimensions Height Width Length (inside knuckles)	10'	10'
Supplies (total capacity) Lubricating oil Engine-cooling water Sand Fuel oil "If boiler is applied Boiler-water	240 gal 27 cu ft 635 gal	240 gal 27 cu ft 1600 gal* 800 gal

GENERAL SPECIFICATIONS

380 HP	
Starting Tractive Effort (at 30% adhesion)	26,400 lb
Minimum Radius of Curve (locomotive alone)	50 ft
Gear Ratio	
Engines—two, eight-cylinder. Each	190 hp
Motors—double-reduction, gear drive	4
Driving Wheels—Number Diameter	4 pairs
Wheelbase—Each truck (rigid)	. 6 ft, 10 in
Weight—Total locomotive (working order) On drivers	88,000 li
Over-all Locomotive Dimensions	
Height	. 13 ft, 3 in.
Width Length (inside knuckles)	33 ft, 5 in.
Supplies (total capacity) Lubricating oil	50 cal
Fuel oil	250 gal
Engine-cooling water	40 gal

When every ton-mile must contribute more net income --YOU WANT THE EARNING POWER OF ALCO-G.E. DIESEL-ELECTRICS

IN all types of railroad service—yard and terminal, branch line, and main line—Alco-G.E. diesel-electrics are slashing operating and maintenance expenses because they are best suited, in design and construction, to the particular service in which they are working.

Their 90 to 95 per-cent availability, permitting continuous utilization, effectively reduces the number of locomotives and investment in supporting facilities required to do a certain job.

By combining the high thermal efficiency of the diesel engine with the flexibility of electric drive, diesel-electrics offer these advantages:

- 1. Full engine horsepower available for traction to easily start and accelerate heavy trains and to maintain high speeds on steep grades.
- 2. Uniform torque on all drivers, and an even distribution of tractive effort on all wheels, enable diesel-electrics to maintain schedules without reducing the weight of trains—regardless of rail conditions.
- Increased payload and work output as a result of reduced deadweight of fuel, longer working periods between refuelings, and less time spent taking on fuel and water.
 - 4. Smooth, fast throttle response to lessen the danger of damage to cars.

Whether your motive-power requirements call for diesel-electric, electric, or steam, Alco and G.E. can supply the one that is best suited to your particular needs. Our representatives will gladly survey your system and give you the benefits of our 150 years of combined experience in designing, building, and applying all three types of motive power.

GENERAL SPECIFICATIONS 2000 HP

Starting Tractive Effort (at 24% adhesion) Maximum Curvature Engines—two, six-cylinder, vertical, supercharged. Each	21 dagrage
Motors—single-reduction, gear drive	4
Maximum speed restriction	120 mph
Wheels Drivers 4 pairs, diameter	
Idlers—2 pairs, diameter	
Wheelbase—Each truck (rigid)	15 ft, 4 in.
Locomotive truck centers	58 ft, 4 in.
Weight—On driving wheels (4 axles)	220,000 lb
Un idler wheels (2 axies)	110,300 lb
Total locomotive	330,000 lb
Over-all Locomotive Dimensions	
Height (Roof)	
(Maximum)	
Width (Inside cab sheets)	9 ft, 9 in.
(Maximum)	
Length (Over-all, over pilot)	
(Inside knuckles)	. /4 III, 0/2 III.
Fuel oil	1200 gai
Engine-cooling water (per engine)	325 gal
Sand	20 cu ft
Boiler water	1000 gai
	1000 841



AND GENERAL ELECTRIC

BUY WAR BONDS

ALCO-GE FEATURES THAT INSURE CONTINUOUS, LOW-COST OPERATION

DIESEL ENGINE—a source of constantly available power

Weight, necessary for adhesion, is used to strengthen important working parts of this engine rather than being carried merely as ballast. Piston-pin trouble is avoided because, in four-cycle design, the engine has a reversal of load which allows both sides of the pin to be lubricated. The perfectly symmetrical liners have no ports and they accurately fit the smooth bore. This permits thorough lubrication which, in turn, results in low fuel consumption.

TURBO-CHARGER—to boost engine's power output

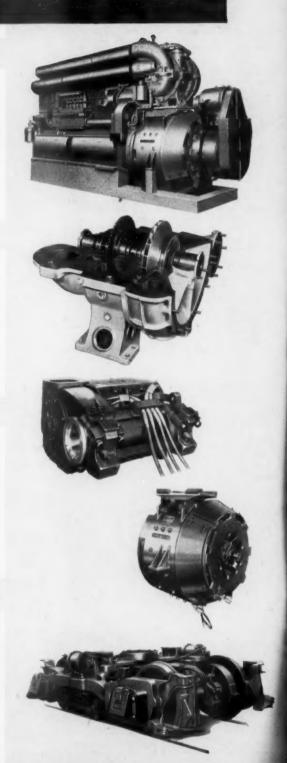
The Buchi System turbo-charger on Alco-G.E. diesel-electrics increases power output, not by increasing maximum cylinder pressure, but by maintaining that pressure throughout a greater part of the power stroke. Because it provides better cooling and more thorough scavenging, this turbo-charger increases the engine's operating economy and useful life. The single moving part is driven by the engine's exhaust and automatically supplies the correct amount of air at all times.

ELECTRIC DRIVE—efficiently transmits power to wheels

The constant-output electric drive makes the engine's entire horsepower available for traction at all times. The result is rapid acceleration and high average and top speeds for given engine speeds. The generator is direct-connected to the engine frame to assure alignment. The traction motors have exceptionally rigid armatures that reduce wear on gears and pinions. A split-pole exciter which requires little or no servicing maintains constant generator output throughout the normal speed range of the locomotive.

RAILROAD TRUCKS—smooth riding, simple design, low maintenance

Sturdy, one-piece, cast-steel frames on both the four-wheel and six-wheel trucks meet railroad requirements of simplicity and easy maintenance. They are equipped with smooth-riding combination springs: semieliptical and coil. All bearings, brake parts, spring rigging, and center plates are arranged for easy lubrication. The wheel-and-axle assemblies can be removed either with or without the motors.





AMERICAN LOCOMOTIVE and GENERAL ELECTRIC

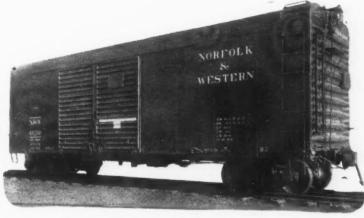






Traffic will demand specialized cars. We have expended years in the development of such equipment.





Dump Cars

MAGOR CAR CORPORATION

50 Church Street

New York 7, N. Y

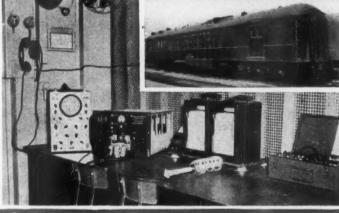
Out of Two Laboratories

comes a NEW railroad communications





Sperry's Research Laboratory where Railroad Communications System was designed and developed



 Rock Island's Mobile Electronic Laboratory where equipment was put to rugged test

THE ENGINEERING STAFF of the Sperry Gyroscope Company, in collaboration with engineers of Rock Island Lines, has perfected a new system of railroad communications.

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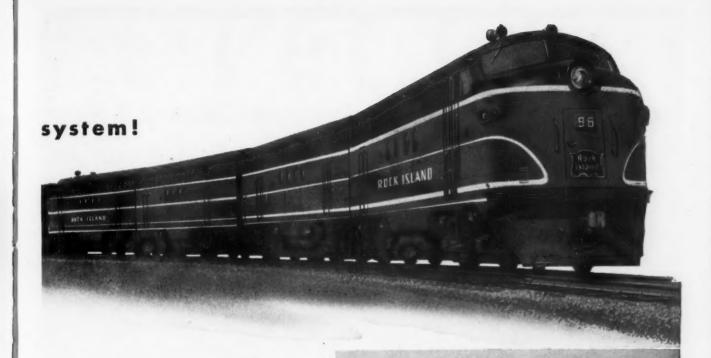
Designed especially for railroads by Sperry and tested extensively by Rock Island, this system offers to the railroad industry microwave applications, secret until now, which Sperry's vast engineering group developed during the war years in co-operation with the U. S. Navy. With the aid of Rock Island engineers working in their specially equipped Electronic Car, the Sperry system has been completely tested and proved.

Sperry's Railroad Communications System makes possible for the first time clear, audible signals through tunnels, deep gorges, and the usual terrain and atmospheric conditions encountered in railroad service. No man-made

SPERRY GYROSCOPE COMPANY, INC.

Division of the Sperry Corporation

Leaders in the fields of . . . GYROSCOPICS . ELECTRONICS



or atmospheric disturbance interferes with vital business!

Automatic relay stations, employing heretofore-restricted radar components that can be substituted for overhead land lines in treacherous storm areas, will link way stations and headquarters, and provide a continuous en route connection between trains and wayside points. A specially designed antenna provides any required degree of directional control.

Rock Island Lines, whose "sole purpose is to provide the finest in transportation," is being equipped with a Sperry Railroad Communications System.

If you would like our help in planning a complete radio communications system to expedite the handling of your freight and passenger traffic, write our Industrial Department for further information.

SPERRY RAILROAD COMMUNICATIONS SYSTEM

- Microwave applications for the first time
- Designed especially for railroads
- Greater Range
- Increased Signal Strength
- FM Signal Audibility through any kind of interference
- Any degree of Directional Control
- Suitable for indoor and outdoor installations
- Available in both VHF and UHF

GREAT NECK, N. Y. * LOS ANGELES - SAN FRANCISCO - SEATTLE - NEW ORLEANS - CLEVELAND - BROOKLYN - HONDLULU *



■ ■ In your plans for insuring a profitable volume of post-war passenger business, an all-important factor is complete passenger comfort.

This depends on the reduction of noise and vibration. The use of FABREEKA in trucks and platforms of cars reduces noise and vibration to the maximum degree . . . Furthermore, — FABREEKA provides substantial economies in maintenance.

FABREEKA Pads, Washers, Bushings, Moulded Units and Fabreeka Units Fabricated with Steel.

FABREEKA PRODUCTS COMPANY, INCORPORATED

BOSTON 10, MASS.

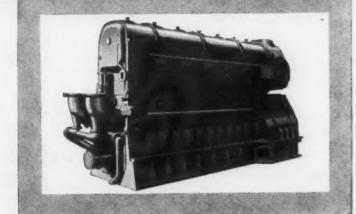


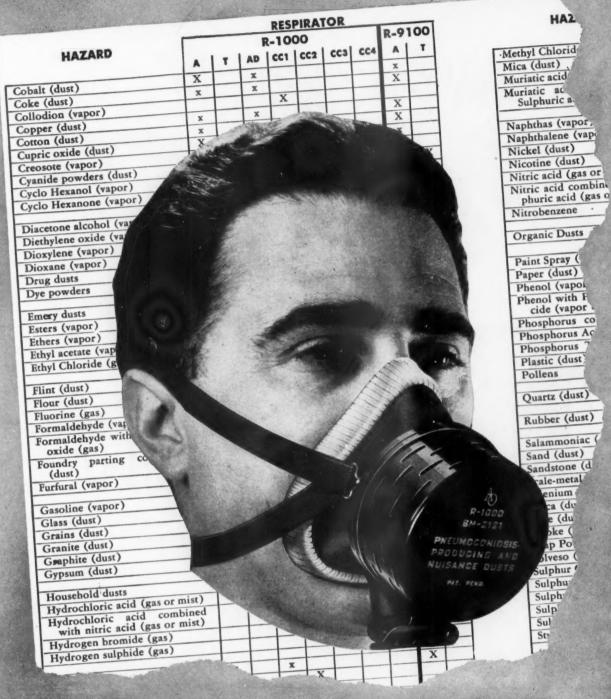
TOMORROWS POSSESSED TOOMY!



It's the
Full-Power Diesel Locomotive
by
FAIRBANKS-MORSE

A name worth remembering





AO R-1000 Means - 7 Respirators in 1

The AO R-1000 Respirator is equipped with seven interchangeable cartridges, providing protection against more than 140 types of dust, vapors and gases.

Adaptability of design, pliability of rubber, and smoothly rounded face-contacting edges make it possible to fit the AO R-1000 to any face safely, comfortably and without adjustment.

Exhalation valve assures complete expulsion of exhaled air, even when worker's head is down; can't stay

open or fill with moisture; dust cannot infiltrate.
Inhalation valve provides positive protection under all conditions; holds re-breathing to minimum; keeps efficiency at high level; admits air at the lightest intake

Your nearest AO Representative will be glad to demonstrate.

Send for your AO Respirator Guide—showing proper protection against more than 140 respiratory hazards.



COMPANY

SOUTHBRIDGE, MASSACHUSETTS

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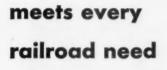
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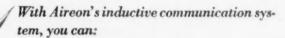
Aireon



for radio communication

NOW

FIRST radio communication equipment on any main-line railroad, AIREON sets have logged hundreds of thousands of miles in daily service. They are doing the job of speeding, making more positive and efficient railroad traffic control. Here's how:



- A. Talk with any train, at any time.
- B. Talk between engines and cabooses.*
- C. Talk between adjacent trains.*
- D. Talk between wayside stations. **

With Aireon's space radio system, you can:

- A. Talk between engines and cabooses.
- B. Talk between adjacent trains.
- C. Talk between trains, or switch engines and yard offices.
- D. Talk between trains and wayside stations.***

INQUIRY INVITED. Please address 5. W. Fordyce, III.



With Aireon's portable radio system, you can:

- A. Talk between brakemen and either end of trains.
- B. Talk between car inspectors or yard checkers and yard offices.
- C. Talk between foremen and work gangs.

With Aireon's space radio system for emergencies, you can:

Restore communication when wire lines are down from storms and floods.

With Aireon's carrier system, you can:

Talk from station to station when added facilities are needed during peak movements.

With Aireon's space radio system for motor vehicles, you can:

Talk with any truck or bus from fixed stations or control points.***

- Where one or more wayside wires are within reasonable proximity to trains.
- **For distances up to 100 miles, de-
- pending on condition of wayside
- ***For distances up to 15 miles, depending on local terrain.



MANUFACTURING CORPORATION

Fairfax and Funston Roads, Kansas City 15, Kansas

To SERVE AMERICA'S FUTURE

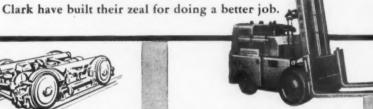
THIS WE ALL KNOW—American industry can manufacture precision quality, on a mass production scale, at invincibly low cost. We know-for we've been doing it for four years . . . This, too, we know-that if America is to maintain her leadership, Materials Handling must be engineered as an essential phase of Planned Production-must serve and aid and expedite production, by moving materials faster, more efficiently and at lower cost . . . There's a simple answer: Mechanization by means of Clark Fork Trucks and Industrial Tractors-the fast, husky, tireless workers into which the Men of







STREET RAILWAY CAR TRUCKS



FORK TRUCKS AND INDUSTRIAL TRACTORS



GEARS AND FORGINGS



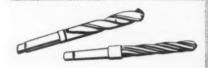
One piece, forged, heat treated AXLE HOUSING



ELECTRIC STEEL CASTINGS



TRANSMISSIONS for Trucks, Busses, Tractors



CELFOR HIGH-SPEED DRILLS AND REAMERS



POWER BOOSTER for 11/2-ton Trucks



BLIND RIVETING PROCESS



METAL SPOKE-TYPE WHEELS for Trucks, Busses, Trailers



AXLES-front and rear for Trucks, Busses, Tractors



EASY-ROLL TRAILER AXLE

CLARK EQUIPMENT COMPANY RAILWAY DIVISION - - - BATTLE CREEK, MICHIGAN

IF IT'S

LIGHT METALS

CONSULT WITH COLGATE

If weight is a factor in any part of your product, why not consider the use of Aluminum, Magnesium or Stainless Steel, by using Colgate Engineered service for parts fabrication and assemblies?

It has been proven, by extensive war time practice, that sub-assembly when properly engineered cuts costs, speeds production and takes the headaches out of manufacturing.

Colgate has an organization with veteran experience, and many compressed years of "know how" in the fabrication of aluminum. magnesium and stainless steel parts and assemblies.

UNSHACKLED BY PRECEDENT

But, it is young in both personnel and ideas. Its success is due to refusal to be hobbled by precedent; and the courage to apply new methods in tackling the most difficult jobs.

It knows light metals. It is experf in parts fabrication and assembly work, taking details off the shoulders of the manufacturer who is looking for a top-notch organization, needs help in the solution of such problems, and who plans to use aluminum, magnesium or stainless steel.

So why duplicate or maintain, at excessive cost, a separate division of your own company, when you can get an organization ready to "go into action" at a moment's notice.

The Colgate Aircraft Corporation offers you an excellent four point plan that covers engineered service in the light metal parts fabrication and assembly field.

COLGATE OFFERS YOU:

- Specialization in light metal industry. Experience in handling and fabricating sub-assembly parts.
- 2. A co-operative engineered service on every job by a trained engineering personnel.
- Experience on both large and small jobs, either on parts, sub-assemblies, or complete products. Knowledge of quality control and working to the most exacting specifications.
- 4. Deliveries on time.

COLGATE Aircraft Corporation
AMITYVILLE, LONG ISLAND ... NEW YORK

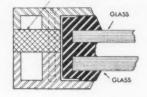
LIGHT METAL PRODUCTS

DIVISION



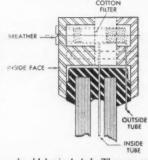
CONSTRUCTION DETAILS

Both frames of Adlake Sash are insulated from each other. This prevents cold from traveling to inside of unit prevents frosting.



INSULATION

Note inside and outside "breather" tubes. These permit air between panes to adjust to changes in temperature and altitude—prevent clouding without use of a dehydrant.



Adlake CURTAINS . . . should be included. They never shake, rattle, or jangle. Swivel tip prevents change in length; rubber shoes stop noise and creeping. Ask for details about Adlake Curtains, Curtain Fixtures, Sectional Diaphragms, Vestibule Curtains.

BUY MORE WAR BONDS

no maintenance is needed

A hunting scene ... a snow-covered mountain ... a city skyline, they're there through the advantages of unclouded, unfrosted windows—Adlake windows. Passengers enjoy the scenery. Railroad men appreciate the elimination of maintenance.

Adlake Double-Glazed Sash Units assure clear, unhampered vision at all times. The Adlake Breather—an exclusive principle—permits the air between the panes to adjust itself quickly. No artificial drying method is used.

Adlake Windows use no dehydrating compound, hence there's none to replace. Except for routine washing or broken pane replacement, Adlake Windows require absolutely no maintenance.

Adlake Double-Glazed Windows are again furnished in aluminum or with Alumilite* finish, if desired. They are designed and produced for new cars or for reconditioning present equipment. They are designed and built to standards that have won

them a reputation for superiority throughout years of service. Write for prices and details... and specify Adlake.

* Patented Process of Aluminum Company of America.



THE ADAMS & WESTLAKE COMPANY

ESTABLISHED IN 1857

ELKHART, INDIANA

NEW YORK - CHICAGO

ADLAKE RAILWAY CAR EQUIPMENT, FITTINGS and SPECIALTIES . DOUBLE GLAZED ALUMINUM WINDOWS . WINDOW CURTAINS . VESTIBULE CURTAINS . SECTIONAL DIAPHRAGMS . LUGGAGE RACKS . ASH RECEPTACLES . HARDWARE

di

AMCRECO Creosoted PRODUCTS



... they help roads accomplish the difference between "paying the freight" and

making the freight pay!

AMERICAN CREOSOTING COMPANY

COLONIAL CREOSOTING COMPANY INCOMPORATED



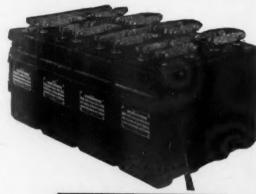
GEORGIA CREOSOTING COMPANY

ADDRESS INQUIRIES TO CHICAGO. ILL., OR LOUISVILLE, KY

TIES · POLES · PILES · TIMBER



The "high ball" has been given. Those luxurious passenger cars, long on the blue prints, soon will be coming fast off the production lines. With added electrical innovations, Exide Batteries will be assigned new duties... and Exide is ready with the finest batteries ever to bear the Exide name. On many of the new cars and locomotives, powerful, rugged Exides will supply current for lighting and air-conditioning, cranking Diesel engines, powering train telephone systems, and performing a multiple of other tasks. And whatever the job, Exides will perform with dependability, long-life and ease of maintenance.



Exide IRONGLAD BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32

Exide Batteries of Canada, Limited, Toronto

EDWARDS

DOUBLE SEALED
DEHYDRATED SASH UNIT

PROTECTION against FOG FILM FROST

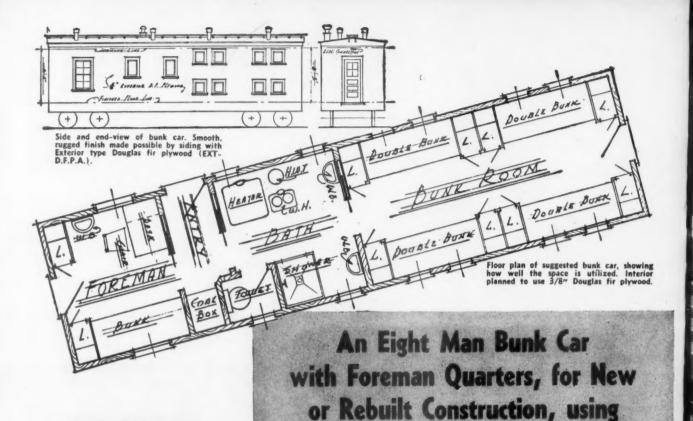
Summer and Winter . . in high or low altitudes . . . under varying climate conditions—new Edwards Sash units assure perfect visibility, maximum passenger comfort and the more efficient operation of air conditioning systems because they are DOUBLE SEALED against FOG . . . FILM . . . FROST.

Developed as a result of years of experience in building such for ALL types of transportation, these new "Clear Vision Coach Eyes" by Edwards are available in completely assembled units, ready for fast, economical installation in every type of new or rehabilitated equipment. Send for complete information about this new and BETTER Sash Unit.

The O. M. EDWARDS COMPANY, Inc.
SYRACUSE, N.Y.

EDWARDS SASH

THE EYES OF TRANSPORTATION

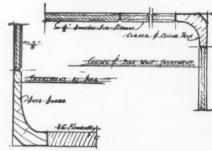




Exterior Type Douglas Fir Plywood

Always look for the EXT-DFPA "grade trade-mark" — branded or stamped on every genuine panel of Exterior-type Douglas Fir Plywood. It is your assurance that you are getting a panel made especially for permanent exterior use.

Interior Details



Detail showing treatment of ceiling, base and side wall construction with Douglas fir plywood.

Roominess, convenience and utilitarian arrangement characterize this *lan—a suggested development for either new or rebuilt construction.

Advantages not immediately apparent are those inherent in the qualities of Douglas fir plywood*—rigidity, tightness and smooth, easy-to-clean surfaces. Cars built with plywood are sturdy because this modern "miracle wood" is cross-laminated for strength. Cars are easy to heat because plywood's large panel size reduces seams and cracks. Panels go up quicker, too, cutting your construction costs.

Douglas Fir Plywood Association engineers will be glad to work with you in developing such a unit; or for technical data and informative literature write

DOUGLAS FIR PLYWOOD ASSOCIATION

Tacoma 2, Washington

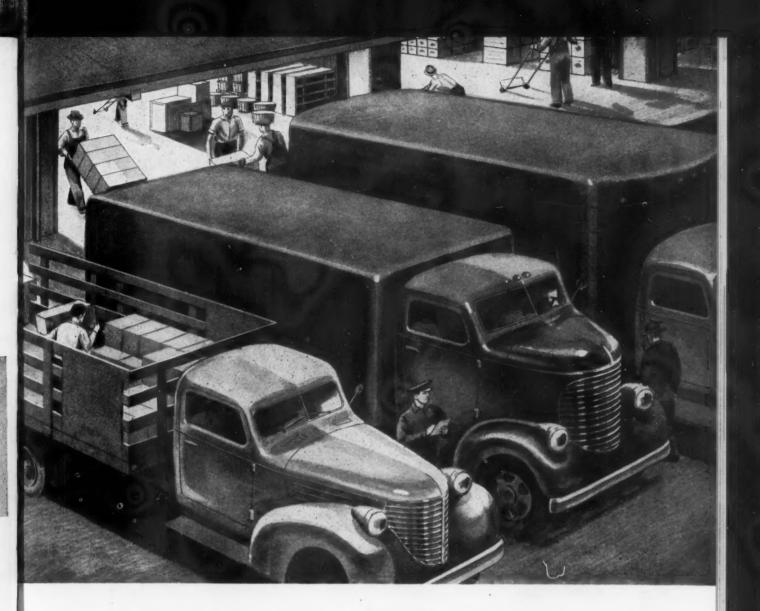
*Douglas fir plywood has proved its advantages for railroad construction of all kinds—in box cars, reefers, troop sleepers, and in the building of stations and other structures.

For information on prices and deliveries, see your regular source of supply.



Douglas Fir Plywood

SPECIFY DOUGLAS FIR PLYWOOD BY THESE "GRADE TRADE-MARKS"



AIR BRAKES STOP EM ALL

Heavy or light, there's a genuine Bendix-Westinghouse Air Brake designed especially for every class of service. Naturally your business is different and Bendix-Westinghouse takes this into consideration when it offers a control tailored exactly to meet your individual requirements ★ Consult your local authorized Bendix-Westinghouse Distributor. He's an expert on braking problems whose service has proved invaluable to thousands of operators like yourself. His recommendations

you can rely upon and it may surprise you to know that the conversion to genuine Bendix-Westinghouse Air Brakes will be to your distinct economic advantage. At any rate, it will pay you well to investigate this time tested power-to-stop which bears the unqualified endorsement of the nation's leading manufacturers and operators.

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY . . . ELYRIA, OHIO

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AIR BRAKES

AND PNEUMATIC CONTROL DEVICES

IT IS SIGNIFICANT THAT AMERICA'S FINEST MOTOR TRUCK FLEETS ARE EQUIPPED WITH BENDIX-WESTINGHOUSE AIR BRAKES

CAR WHEEL BORER EASY TO OPERATE



The Niles Hydraulic feed wheel borer will rough, finish machine and chamfer the bore, also face the hub of cast iron or steel wheels with a minimum of machining time and effort on the part of the operator.

Write for Catalogue Covering Complete Line of Niles Tools including driving wheel lathes, car wheel lathes, car axle lathes, car journal turning lathes, locomotive journal turning lathes and locomotive wheel quartering machines.



GENERAL MACHINERY CORPORATION HAMILTON, OHIO, U. S. A.

The Niles Tool Works Company
General Machinery Ordnance Corporation

FOR PASSENGER COMFORT & SAFETY

The Association of American Railroads through its Committee on Couplers and Draft Gears, during the early part of 1936, requested the cooperation of the Standard Coupler manufacturers in the development of a tightlock coupler for use in passenger equipment cars.

The designs that were presented in response to this request were considered in the interest of developing a simple design of tightlock coupler. The specified fundamental design requirements for a tighlock coupler were:

- (a) That contour free slack be reduced to a minimum or, if possible, entirely eliminated.
- (b) To be capable of intercoupling with existing A. A. R. types of couplers.
- (c) To be at least equivalent in strength to the A. A. R. Standard E Coupler.

Accordingly, through the cooperative efforts of these two groups, a design of tightlock coupler was developed embodying these fundamental requirements, and this early design was approved in 1937 by A. A. R. requirements, and alternate to the Standard E Coupler for passenger letter ballot as an alternate to the Standard E Coupler for passenger

Constant effort has been made to improve the efficiency and safety of the tightlock coupler since the original design was applied. This has resulted in the development of the present Type H tightlock coupler which was adopted by letter ballot in 1944, as Tentative Standard of the Association of American Railroads.

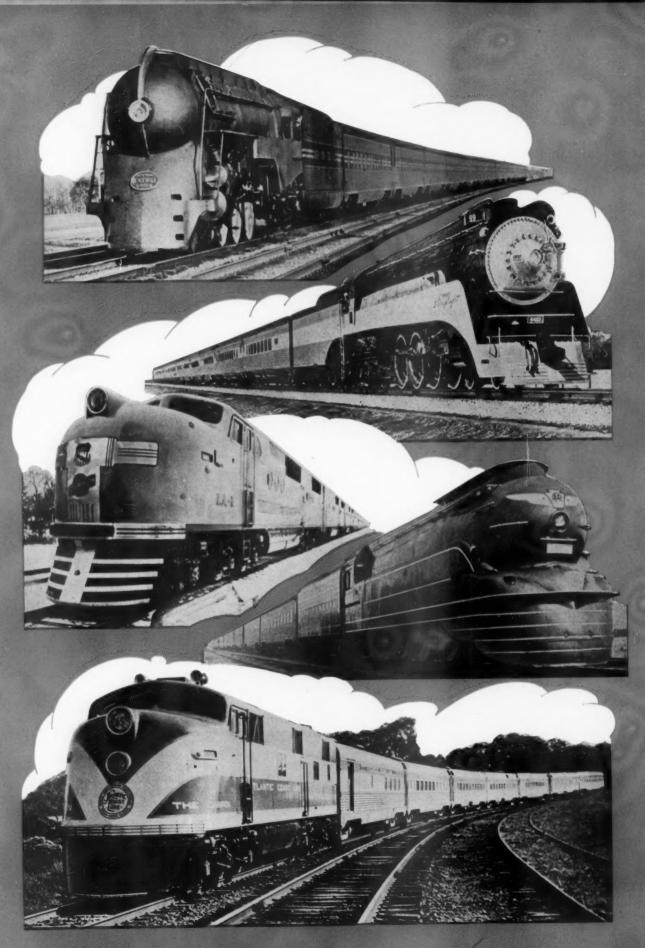
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THE BUCKEYE STEEL CASTINGS CO.

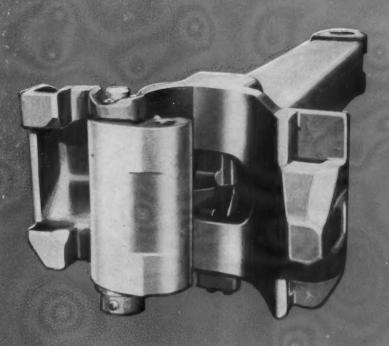
McCONWAY & TORLEY CORPORATION

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

THE SYMINGTON-GOULD CORPORATION



Safety... Comfort... Economy



A.A.R. TIGHTLOCK COUPLERS

Eliminate slack in coupler contour.

Eliminate noise caused by coupler slack.

Interlocking feature prevents telescoping and turning over of cars.

Improved anti-creep arrangement, and A. A. R. No. 6 operating mechanism prevents train separation.

Will couple with present standard and M. C. B. type couplers and when so coupled provides substantial reduction in contour slack.

Wear of coupler head and parts is materially reduced, thus increasing the service life.





• Passenger comfort is increased by elimination of jerks and shocks due to starting and stopping of train.

The interlocking feature of A. A. R. Type H Tightlock couplers prevents telescoping of cars and usually prevents them from turning over.

Only when all cars in the train are equipped with Tightlock Couplers can the maximum safety be secured.

For complete description of the A.A.R. Type H Tightlock Coupler and attachments, write for Circular No. 1245.



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YOKE-STANDARD DRAFT GEAR POCKET



YOKE-STANDARD POCKET FOR TWIN DRAFT GEAR



RADIAL CONNECTION SEAT





YOKE PIN

RADIAL CONNECTION
AND PIN RETAINER

AMERICAN STEEL FOUNDRIES

THE BUCKEYE STEEL CASTINGS CO.

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

McCONWAY & TORLEY CORPORATION

THE SYMINGTON-GOULD CORPORATION

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NATIONAL K-4 Friction Draft Gears

were designed to promote riding comfort in passenger train service.

National K-4 Gears start action smoothly, gradually building up resistance sufficient to absorb the heavy blows without shock, and release quickly and smoothly.

The friction system in the K-4 Gear releases first and is always available to cushion a quick succession of blows.

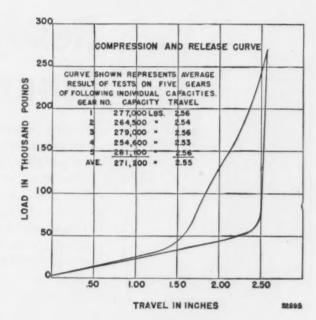
A K-4 Draft Gear applied to the tender will insulate the cars from pulsations from the locomotive.

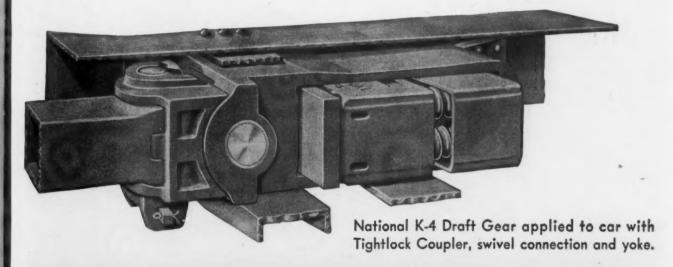
This gear meets the A.A.R. recommendations for passenger equipment type of draft gears.

The chart at the right shows the smooth action of these gears.









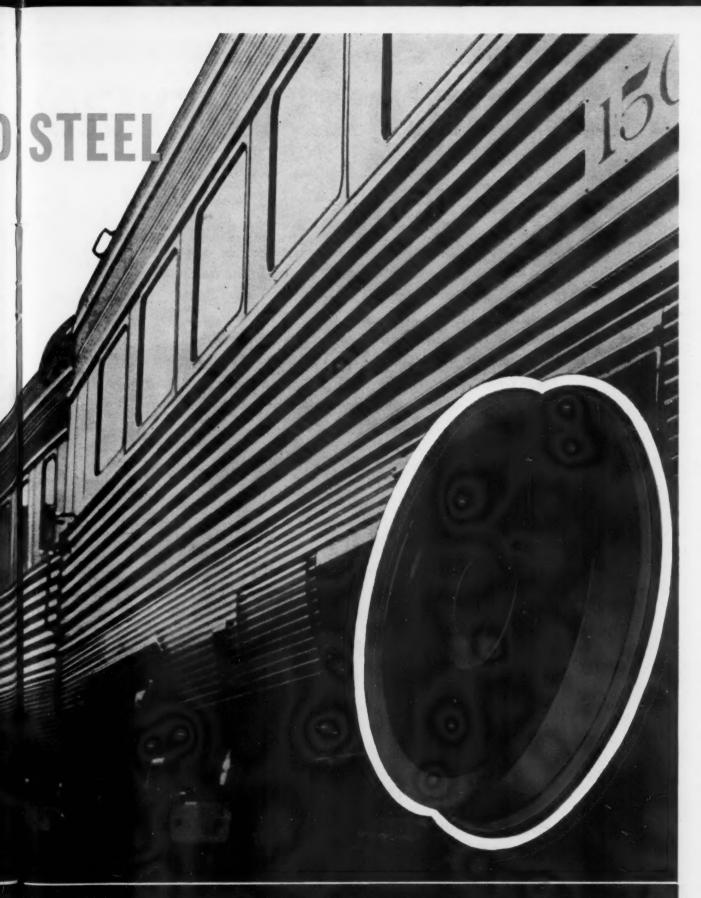
NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco. Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, III.

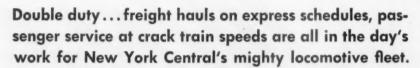


EDGEWATER STEEL COMPANY · PITTSBURGH, PA. Philos



Atlanta, Ga. Baltimore, Md. Boston, Mass. Chicago, III. Cleveland, O. Kansas City, Mo. Lauisville, Ky. New York, N.Y. Philadelphia, Penna. St. Lauis, Mo. St. Paul, Minn. San Francisco, Calif. Seattle, Wash. Washington, D. C.

Doing DOUBLE DUTY with



Naturally, today's increased power, higher speed, and need for greater availability call for super-efficient lubrication—in which Sinclair is proud to have a share.

New York Central is a big user of Sinclair lubricants, which are proving their efficiency and economy on more than 150 American railroads.

SINCLAIR SUPERHEAT VALVE OIL—for dependable lubrication under extreme heat and high pressure.

SINCLAIR DRIVING JOURNAL COMPOUND

— assures efficient lubricating film at all speeds.

SINCLAIR CAR and ENGINE OILS—low-pour lubricants to guard against hot box troubles.

SINCLAIR HIGH SPEED ROD CUP GREASE
— provides stay-put lubrication for main and side

rod pins in heavy duty, fast service.

SINCLAIR GARNET MINERAL VALVE OIL—a heavy duty lubricant for rod and driving journal roller bearings.

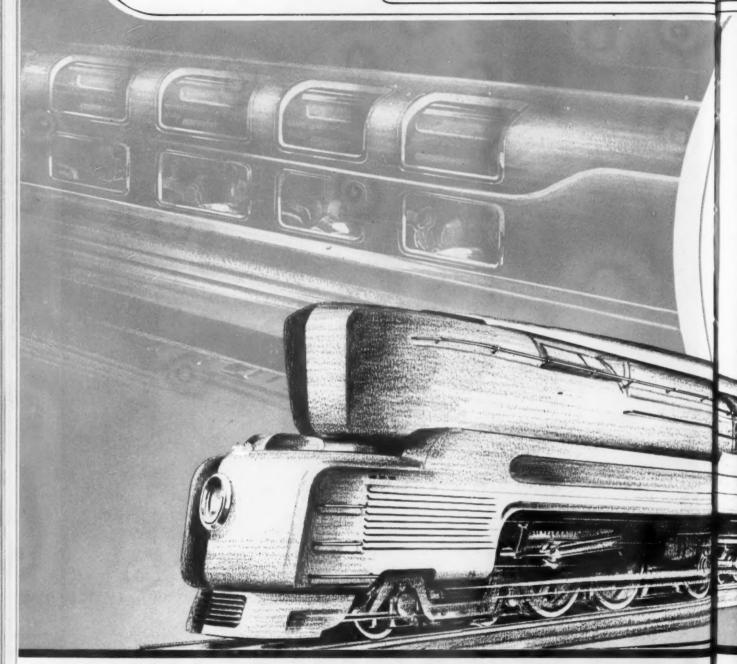
NEW YORK CENTRAL



SINCLAIR RAILROAD LUBRICANTS

SINCLAIR REFINING COMPANY, RAILWAY SALES, NEW YORK . CHICAGO . ST. LOUIS . HOUSTON

STANDARD STOKERS



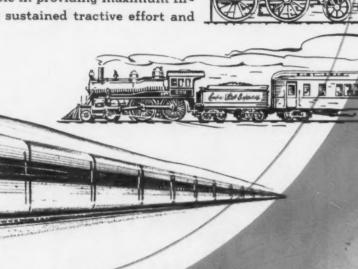
THE STANDARD STOKER

NEW YORK • CHICAGO • ERIE

March with Post-Mar-PASSENGER PROGRESS

TRANSPORTATION MIRACLE has been gradually unfolding across the pages of American Railroad History. It all began with the flow of war materials for our allies, followed by the movement of troops — military trains — and then the switch from East to West to hasten the end in the Pacific. Throughout this entire period civilian passenger and freight service was maintained — truly a miracle! With the same energy and ingenuity which helped to accomplish complete victory, the American Railroads are planning for peace. To a travel conscious public will be offered novel, luxurious coaches, sleeping cars, buffet and lounge cars—a realization of super-comfortable riding pleasure.

And with this era of improved facilities for passenger transportation, many notable advances will be forthcoming in steam locomotives embodying increased power, efficiency and economy. Standard Stokers because of their adaptability and dependable operation on all classes of locomotives will play an important role in providing maximum firing efficiency so essential in producing sustained tractive effort and high utilization.



COMPANY, INC.



New Steam-Turbine Locomotive

MAKING RAIL

The steam turbine that powers this giant locomotive rotates at 9000 RPM, making lubrication an especially tough problem. Shell Turbo Oil is used exclusively for both bearing and gear lubrication.

SHELL

SHELL

-ROAD HISTORY



The Pennsylvania Railroad's direct-drive, steam-turbine locomotive-the first one ever built in the U.S.A .may show the way toward faster, smoother, more efficient postwar trains.

SHELL LUBRICANT

TODAY a huge and entirely new kind of locomotive is speeding over the countryside. This locomotive has no cylinders, pistons or driving rods. Its 6900-shaft horsepower comes from a steam turbine no larger than a refrigerator.

More than 1000 chromium steel blades are mounted on the rotor shaft inside the turbine housing. Steam, shot into the turbine through dozens of nozzles, strikes the first row of blades at 2000 mph, forcing the shaft to revolve. When the locomotive is traveling 100 mph, tips of the largest blades will be traveling nearly 700 mph.

Turbines such as these are subjected to terrific heat, and require a lubricating oil that can do three jobs: 1. Act as a coolant. 2. Lubricate thoroughly. 3. Protect against rust. It also must resist oxidation and sludging which might clog strainers and feed lines, slowing up the oil flow to the bearings. The reduction gearing, 97% efficient and involving high gear tooth pressures, would also be affected.

In Shell Turbo Oil the engineers found the lubricant that can do the job so essential in such high-speed, high-temperature operation. Shell Turbo Oil provides adequate anti-rust protection. and possesses high stability toward oxidation.

For more facts on Shell Turbo Oil and other railroad lubricants, get in touch with Shell Oil Company, Incorporated, 50 West 50th Street, New York 20, New York; or 100 Bush Street, San Francisco 6, California.

RAILROAD LUBRICANTS



SCRATCHED — one power plant ... all the power of one of the six that should be hauling payload.

That's what happens when axle-driven generators and air conditioning systems impose their parasite load upon the locomotive. Power that should be producing

Stop this loss. Put the power parasites off the train. Get all the locomotive's power. Pull more cars... and please more passengers, with the complete comfort of Waukesha modern, deluxe air conditionwakesha modern. Supplied on demand ing and illumination. Supplied on demand ... automatically... to every car by Waukesha engine-driven units.

Completely independent of car location or movement...terminal standby service ... or the locomotive itself!

Full output is available anywhere and at any time—day or night, winter or summer.

The Waukesha Ice Engine delivers tull car-cooling capacity under thermostatic control. Cooling is proportioned to demand by modulation. Wide fluctuations in temperature and humidity are reduced assuring maximum passenger comfort.

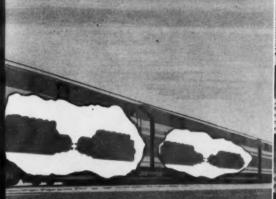
The Waukesha Engine-Generator—a compact, lightweight, dependable power plant—equally automatic and entirely independent—supplies full voltage illumination, to complete the Waukesha comfort cycle.

Ten years of outstanding service, and millions of miles of operation on the cars of more than 25 major American railways, and the Pullman Company—have tested and proved the advantages and savings of these Waukesha units.

Your new equipment plans should include the Waukesha Comfort Twins. Send for Bulletins 1114 and 1179.

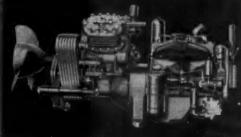
Refrigeration Division, WAUKESHA MOTOR Co Largest Builders of mobile, engine-driven

load stealing 16 of your power?

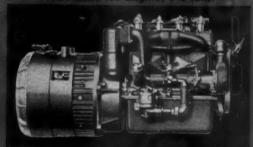


Waskesha Twin Units (left to right): Engine-Generator, Ice Engine and Sus-Cooler; withdrawn for maintenance inspection.





Wankesha lee Fagine 7-8 tone



Waukesha Engine-Generator, 74 KW



Waukesha Engine-Generator, 25 KW

WAUKESHA

Engine Driven

EQUIPMENT



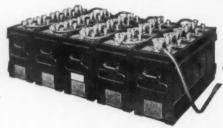
THE WAUKESHA COMPORT TWINS

ROMPANY · WAUKESHA, WISCONSIN Refrigeration and Generator Equipment

You get these ... 8 IMPORTANT ADVANTAGES

when Alkaline Batteries ride the Caboose.

A 25-cell, 32-volt alkaline battery





ALKALINE BATTERIES are light in weight. • They are durable mechanically; because of their steel cell construction, they will withstand successfully the mechanical shocks incidental to freight train operation. • They are foolproof electrically; are not injured by ex-

cessive charging or by overdischarging which are likely to occur as a result of run variations whether the caboose car is provided with generating equipment or the batteries are charged from yard power.

 They accept charge rapidly; can be completely charged at full normal rate up through the finish, or at higher rates for short periods regardless of state of charge.

• They resist temperature extremes; are not subject to injury by freezing.

• They can stand idle indefinitely without injury. Merely discharge, short-circuit, and store in a clean, dry place.

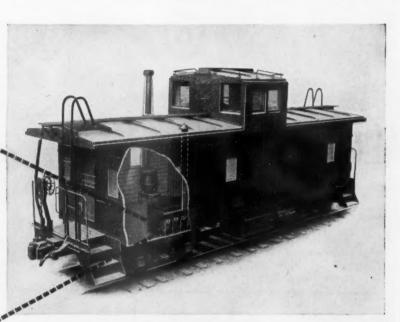
• They are free from corrosive acid fumes; may be installed in close proximity to delicate apparatus.

They are simple to maintain.

As a power source for train communication equipment on caboose cars, Edison Alkaline Batteries provide the same outstanding advantages that account for their fine performance and long service records on railway passenger cars. Their construction and inherent operating characteristics . . . listed at the right . . . are your assurance that they will give (I) longer service life than can be obtained from other types of batteries, (2) unequalled dependability and (3) low operating costs.

Ask for Bulletin S. B. 1005. It is prepared to provide railroad and equipment manufacturers with electrical data, dimensions and weights for selecting batteries for this service. Edison Storage Battery Division of Thomas A. Edison, Incorporated, West Orange, New Jersey.



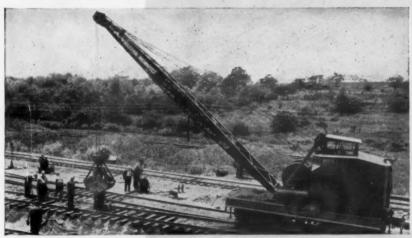


Typical installation of an alkaline battery under a caboose seat bunk

I. B. EQUIPMENT WILL MEET YOUR NEEDS



I.B. 10-12 Ton Traveling Coal Handling Bridge with 300 ft. span and raisable apron extending 110 ft. from pier leg center line. 60 ton bin in pier leg feeds transfer cars.



ABOVE: Note patented Manitor-type cab on I.B. Locomotive Crane, permitting 360° visibility for operator. Below: I.B. Electrically Operated Turnover Dumper handles 100-ton capacity coal-cars.



Regardless of your material handling problems, if they concern the swift, economical movement of large quantities of materials, you can rely on Industrial Brownhoist equipment to do a better job. Like the 10-12 Ton Traveling Coal Handling Bridge illustrated at top left, I.B. equipment simplifies the toughest handling problems - reduces man hours, speeds up production. I.B. Locomotive Cranes, center, roll swiftly to work with magnet, hook, or bucket. The I.B. Car Dumper, pictured in lower photo at work at a midwestern steel mill, handles capacity loaded coal cars like toys-empties one a minute. In scores of installations the world over, I.B. locomotive cranes, bridges, car dumpers, portal pier cranes and dry dock cranes form the husky backbone of important industrial operations. For an engineered answer to your material handling needs, get the facts from Industrial Brownhoist.



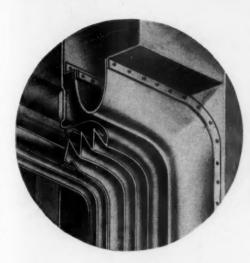
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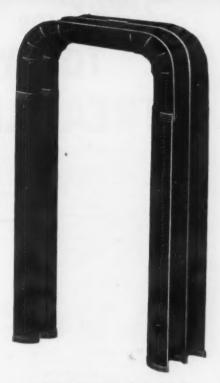
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VESTIBULE WEATHER SEALS

A tight seal to exclude dust and moisture which works through between the diaphragm face plates is afforded by Morton-Zip Weather-Seals, providing the ultimate in comfort for the passengers on America's outstanding trains.



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As the first commercial manufacturer of vestibule diaphragms, Morton has also been a leader in this field. The new "Plastex" finish, available in many colors, adds new qualities to conventional fabrics. Ask us about it.



SAFETY TREAD

The anti-slip surface of Kass Safety Tread, which retains its safety properties even after long wear, is available for car steps, step boxes, vestibules and other areas where security of footing is essential to passenger safety.



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MODERN AIRCO PROCESSES

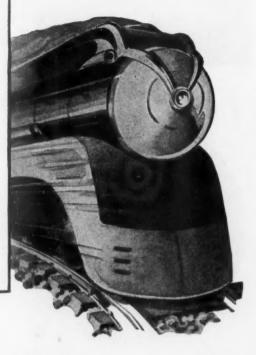
Smooth the Way FOR TODAY'S STREAMLINERS



Building up Worn Rail Ends . . . a standard railroad practice, this economical oxyacetylene flame process contributes to smoother riding and "top" passenger comfort.



End Hardening New Rails . . . new main line rails are end hardened to prevent rail end batter — thus greatly extending service life and assuring maximum passenger safety.



Keeping today's streamliners rolling smoothly under the strain of excessive traffic and limited manpower calls for great ingenuity on the part of men charged with maintenance of way.

To accomplish the desired end of maximum speed and comfort — with maximum safety — more and more railroad maintenance of way engineers are turning to Airco oxyacetylene and electric arc processes. These processes save time, manpower and dollars in restoring battered rail ends, worn frogs, switch points, and work equipment.

Airco's Applied Engineering Department will be glad to aid railroad men in the application of Airco processes to any specific problem. For further information, call or write any Airco office, or write Dept. RA at New York.



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Builders and Operators of Specialized Railroad Freight Cars



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Process Equipmen of All Kinds



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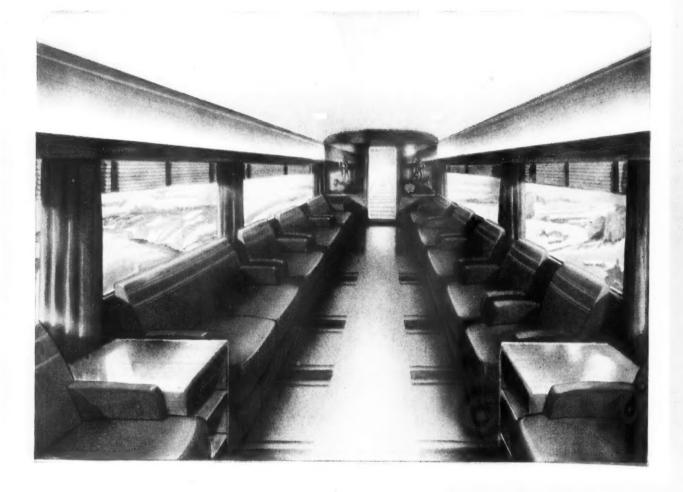
GENERAL AMERICAN TRANSPORTATION

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Luxurious Comfort

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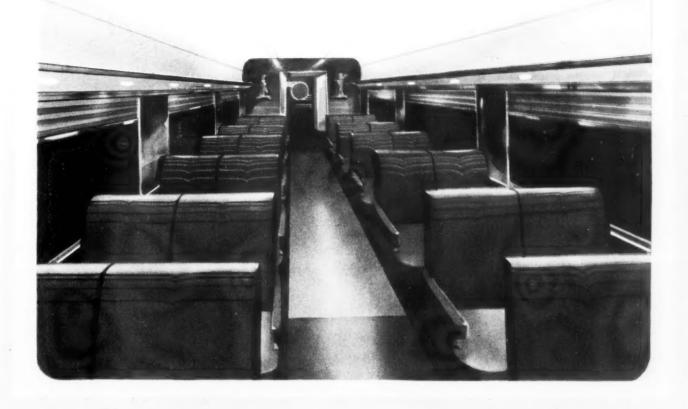


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New Creations for

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* ATTRACTIVE DESIGNS plus AMAZING COMFORT MONEY SAVING DURABILITY * OUTSTANDING ECONOMY

RESSED STEEL CAR points with pride to the progress of the past 45 years when the company started the all-steel car era by building the first all steel passenger car for the Southern. Advanced engineering and constant research always have kept Pressed Steel's Cars in the forefront in engineering stability and luxurious refinements. Pressed Steel has been pushing research into lighter metals, improved welding, new assemblies, plastics, new alloys, new fabrics, synthetic materials for use in building comfortable and attractive cars which are safer, more durable and economical to operate.

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City guests agree their enjoyment of
fine food is enhanced by the beautiful
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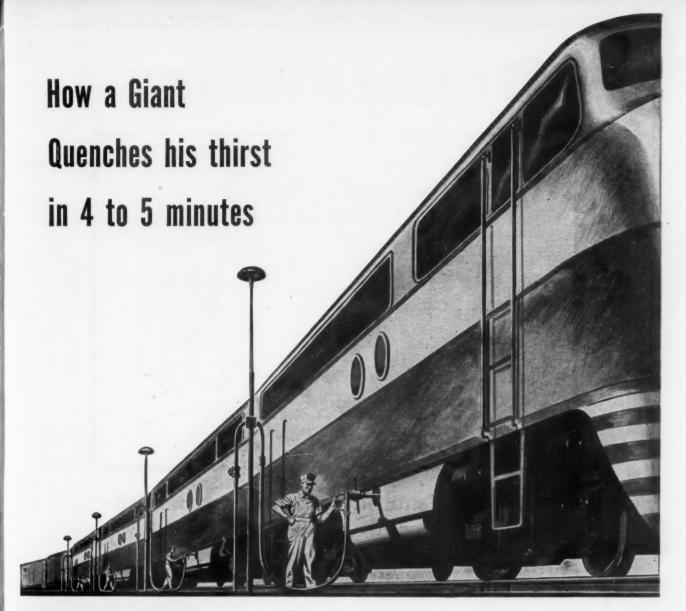
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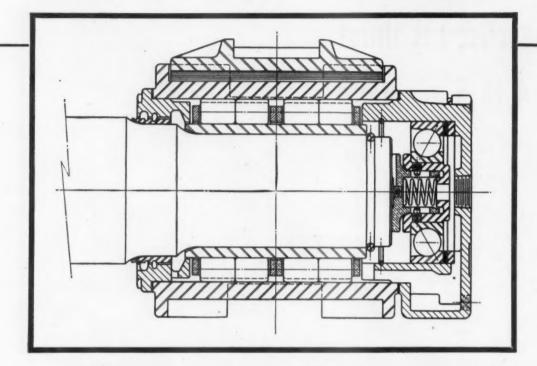
A Bowser engineer will gladly consult with you without cost or obligation. Write today for your free copy of "Bowser Equipment for Railroad Liquids."

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Double Wear



Fafnir Ball and Roller Journal Box with flame hardened, high strength casting is reversible end for end and top and bottom for double wear life.

Light compact design considerably reduces dead unsprung weight. Economical for first cost and in operation.

Pedestal bearing surfaces are hardened for extra long wear... no liners with their costly maintenance are needed.

Type for either grease or oil lubrication. Grease lubricated Journal Box requires only ½ 1b. of grease every 60 days.

Spring loaded thrust assembly is in constant contact with the end of the axle thereby elim-

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Fafnirs are famous for easy starts and fast hauls – positive lubrication at all speeds – effective sealing out of dirt and water – cutting maintenance costs to the bone. Adaptable to Standard AAR pedestal openings as well as most other types of wide pedestal openings. Inner rings need not be removed at wheel turning periods. To apply bearings, simply slide on journal.

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REDUCE STARTING LOADS UP TO 90% . . . CUT MAINTENANCE COSTS TWO-THIRDS



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The draftless distribution of the conditioned air on the Seaboard Air Line Railway's "Silver Meteor" is just as precisely determined by ANEMOSTAT airdiffusers... as is the route of that train determined by the rails it travels.

Air-conditioning comforts win and hold train travelers as surely as do streamlined, luxuriously-appointed cars. Railroads have proven that efficient air-conditioning is one of their greatest ticket-sellers. And they have proven also that the ANEMOSTAT is synonomous with efficient and draftless air-conditioning of railway cars! ANEMOSTAT has no moving parts... no maintenance expense... no wear-out.

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... engineered the solutions of air-distribution in cars... designed and patented the many successful ANEMOSTAT air-diffusers which prevent blasts of hot or cold air on railroad passengers—and yet deliver air-comfort at every seat, throughout every compartment, in every nook and crany of the cars.

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Our engineers are now prepared with unequalled skill—developed through our war research—to again serve the designers, builders and operators of railroads. During the last 25 years ANEMOSTATS have been successfully used on more than 50,000 air-conditioning installations throughout the world. Advise us of your interest in this subject and a conference will be arranged at your convenience—without obligation.

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OXWELD METHODS

PRESSURE-WELDED RAIL—Continuous rails offer unusual advantages in locations where maintenance is difficult—in tunnels, on bridges, through station platforms and road crosslngs, on overhead structures, and in the classification yard—as well as in open track.

make track last longer

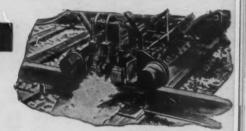
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eliminates end batter and the need for joint maintenance



FLAME-HARDENED RAIL ENDS

resist batter and help prolong rail life



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BUILT-UP RAIL ENDS

increases the life of rail in first position from 50 to 100 per cent





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Unit of Union Carbide and Carbon Corporation

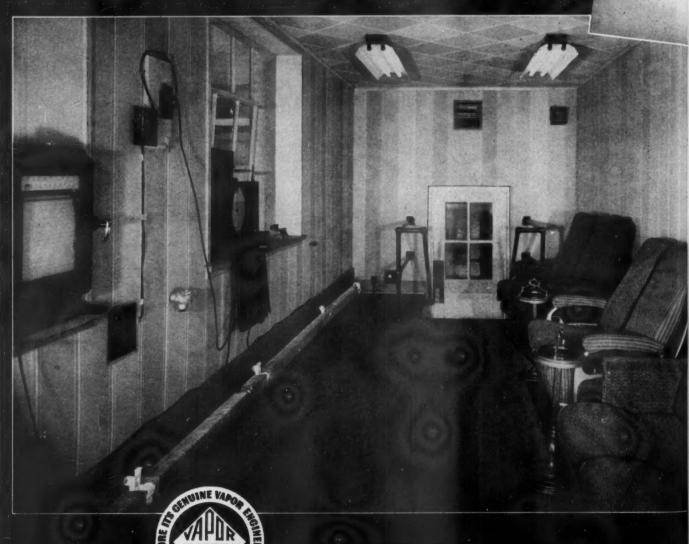
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Carbide and Carbon Building Chicago and New York

SINCE 1912-THE COMPLETE OXY-ACETYLENE SERVICE FOR AMERICAN RAILROADS

FOR THE FIRST TIME IN THE HISTORY OF RAILROADING

TEMPERATURE COMFORT IN A PASSENGER CAR IS ACCOMPLISHED BY A STEADY EVEN FLOW OF EXACTLY THE RIGHT AMOUNT OF HEAT FROM THE RADIATION THROUGH THE USE OF THE NEWLY PERFECTED VAPOR CYCLE MODULATION CONTROL



VAPOR CAR



[VAPOR "CYCLE MODULATION"]

PROVIDES TEMPERATURE COMFORT IN EVERY PORTION OF THE CAR BY PROPER ZONING OF THE PIPING WITH CYCLE MODULATION CONTROL

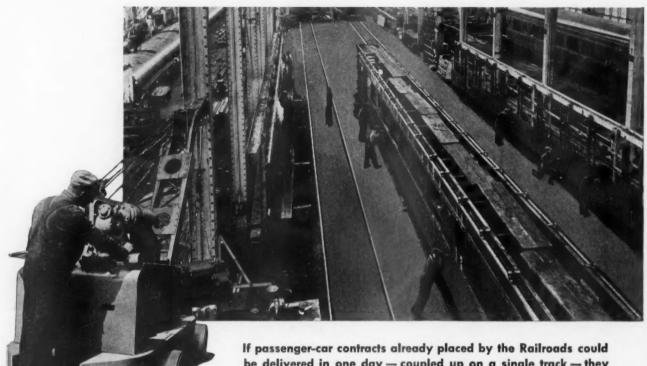
> THE VAPOR TEMPERATURE THE VAPUR MODEL, AT OUR
> TEST CAR PLANT, THAT IS
> CHICAGO PLANT, CHICAGO ING SO MUCH

Cycle modulation, obtained through the Vapor anticipating action mercury tube thermostats, is the most effective control for car temperatures. Its development followed the development of air conditioning itself, with improvements and simplifications in circuits being discovered and adopted.

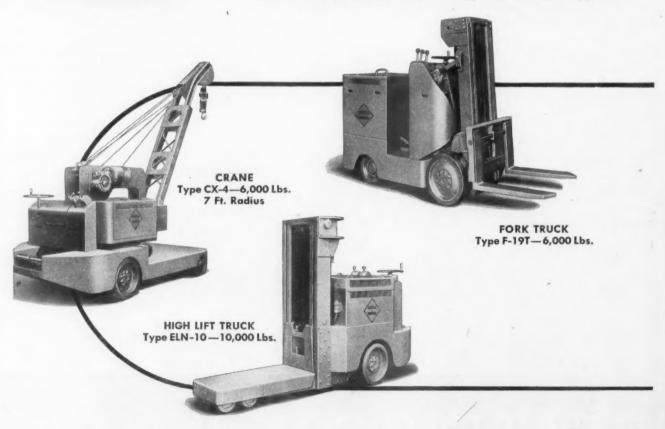
AND NOW, Vapor Cycle Modulation Control actually operates to control the temperatures of the radiation piping so that it delivers a constant steady source of heat in direct proportion to the car's requirements without overheating or underheating at any time.

HEATING CO., INC., CHICAGO 4, ILLINOIS

Elwell-Parker Equipment



If passenger-car contracts already placed by the Railroads could be delivered in one day — coupled up on a single track — they would make a train of brand-new cars more than 18 miles long ** Here is not only a worthwhile job but a great challenge as well to America's capacity for getting things done; a challenge that includes the car-builders and their suppliers—and their suppliers!



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THINK of all the materials required to build and equip a thousand new cars. Think how essential to keep those materials moving in orderly fashion from mine, field and forest to assembly into ultra-modern rolling stock.

And think how vital to keep all those loads coordinated—moving at proper speed to avoid either stuffing or strangling anywhere along the line.

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Elwell-Parker has the experience to aid you in organizing your Load-Transportation Schedules for greater speed and lowered costs. An Elwell-Parker Railway Specialist is within easy reach for personal consultation. Telephone for him—or wire the Home Office today.

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Type EP-6C
Crane 1,000 Lbs. at 7 Ft. Radius
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LOW LIFT TRUCK
Type EP-10 — 10,000 Lbs.

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Your P-M Service Engineer works for you... that's his job! For years Paxton-Mitchell Company has maintained a staff of thoroughly trained Service Engineers well-versed in motive power operation. Experience and contact with packing problems under all kinds of operating conditions makes these engineers a ready source for first hand knowledge of packing difficulties and what to do about them. While P-M Service Engineers claim no superior knowledge, they enjoy the benefits of broad experience of which they give freely,

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ment of freight.

Schaefer "light weight-full strengthplus" Brake Appliances are standard on most roads. Because of their rugged dependability, they are playing no small part in helping to keep rolling stock rolling, and in setting up everincreasing mileage figures.



Write today for a copy of the new Schaefer Catalog.

EQUIPMENT COMPANY

DROP-FORGED FOR LIGHT WEIGHT, HIGH STRENGTH, LONG LIFE AND SAFETY



The Elevator that's Pushed Up IS THE MOST PRACTICAL TYPE FOR 2, 3 OR 4 STORIES

NO PENTHOUSE

NO HEAVY

NO SPECIAL MACHINE ROOM

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Thousands of satisfied owners will testify that Oildraulic Elevators are the most practical type for 2, 3 or 4-story service.

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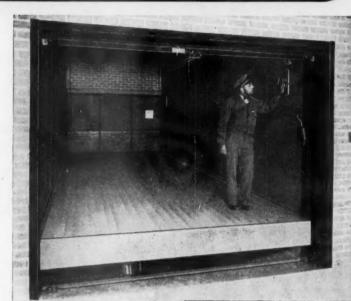
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Oildraulic Elevators for Freight, Passenger, or Other Service

In addition to standard freight and passenger elevators, Rotary makes sidewalk, garage, funeral parlor and clinic elevators. Rotary also has a reputation for designing elevators for unusual applications, such as the six which raise large passenger buses in the new Airlines Terminal, New York City.



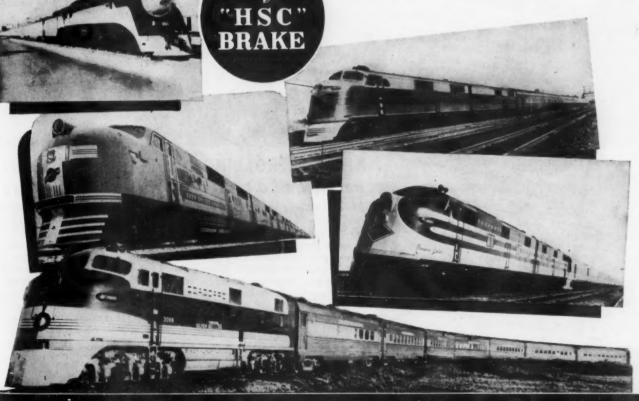
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ROTARY ALSO MAKES OILDRAULIC LEVELATORS-LUMBER LIFTS-AUTO AND TRUCK LIFTS

Smooth Stopping and Stopping More Comfortable

ITH greater emphasis on the renewed activity in the building of more passenger cars for high speed service, closer attention must be given to the air brake equipment. Safety is paramount—passenger comfort is vital—low cost dependable service is essential. You get all three and more by installing the New York H.S.C. Brake. This modern brake not only provides for the rapid yet uniform deceleration of modern light weight trains at high speeds but also insures the uniform, smooth stops which are essential to the comfort requirements of modern passenger service. No pnew passenger car is modern unless it has a modern brake.



The New York Air Brake Company
420 Lexington Ave., New York 17, N.Y. Plant: Watertown, N.Y.

MEET TODAY'S EXTRA DOOR **NEEDS WITH THESE** BUILDING STANDARDS KINNEAR ADVANTAGES

EFFICIENCY

1. PROTECTION

Kinnear's rugged, all-steel construction prevents theft or intrusion, resists saboteurs or mrusion, resists sanoteurs of accidental damage. Defies wind, weather — even closes light tight for blackout safety!

2. SAVE SPACE!..... All floor, wall and ceiling space around the door remains usaround the door remains do able at all times! By providing extra storage or working room, they help keep production roll. ing at top speed!

3. FIRE SAFETY!

Kinnear's interlocking steel. slat curtain is highly resistant to fire. (Fireproof closure may be had with automatic Kinnear ne nau wan amoman axameta "Akbar" Rolling Fire Doors.)

4. OPEN OUT of the WAY!

The doors coil into a small space above the lintel, are always out of reach of damage, ways out of react of usuage, never hinder traffic or other plant operations!

5. LOW MAINTENANCE!...

Kinnear's tough, all-steel construction stands up under today's hard, punishing, nightand day service!

6. QUICK, EASY REPAIR!

Any number of slats can be replaced quickly and easily. Any and all parts are replaceable at any time!



KINNEAR ROLLING DOORS . . . Backed by nearly half a century of PROVED efficiency

Kinnear Rolling Doors have won a world-wide reputation for durability, convenience, and low cost service. And today's increasing need for quick, easy, dependable, space-saving door performance places them more in demand than ever before! Their convenient, coiling, upward operation saves floor, wall and ceiling space. They open completely out of the way, out of reach of damage. Their all-steel construction protects openings against fire, keeps out intruders, thieves and saboteurs, resists damage. Their famous interlocking-steel-slat curtain is strong, but flexible, so that it absorbs shock and blows, and resists wear. You can always depend on Kinnear Rolling Doors for long, economical service. We invite you to request any information you may wish, without obligation.

DOOR

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to RED LEAD'S Extra Rust Protection...

There is no question about Red Lead's acceptance throughout industry as the standard priming paint for making metal LAST.

One important reason is its ability to keep metal surfaces in a "passive" or rustinhibiting state. Authorities agree that metal protective paint should be rust-inhibitive to give satisfactory performance.

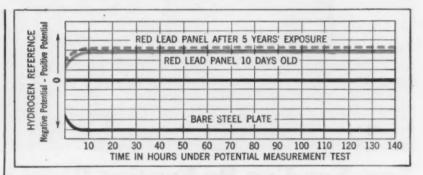
Time-potential curves, such as the one at right, are used to express rust-inhibitive properties of paint and thus indicate its effectiveness of protection. They show the effect of Red Lead on the potential of steel in the presence of moisture or water.

For example, a steel panel whose potential is positive, relative to hydrogen, is considered to be in a passive or non-corroding state. A negative potential indicates corrosion activity or rusting. The graph shows clearly the rust-inhibitive effect of Red Lead paint on steel as contrasted with the rapid and continuous rusting of unpainted steel.

Note that in this test a Red Lead paint film which had weathered 5 years was just as effective in preventing rust as one which had dried for only 10 days.

Specify RED LEAD for All Metal Protective Paints

The value of Red Lead as a rust preventive is most fully realized in a paint where it is the only pigment used. However, its rust-resistant properties are so pronounced that it also improves any multiple pigment paint. No matter what price you pay, you'll get a better metal paint if it contains Red Lead.



*Proof That Red Lead Keeps Metal Passive

In the above test a piece of unpainted steel was immersed in water. Iron, going into solution, reacted with oxygen in the water to form rust. This unrestrained corroding state is indicated by a rapidly developed and maintained negative potential (see above graph). However, when steel panels painted with Red Lead were immersed un-

der the same conditions, ferric and lead salts formed directly next to the metal. This action at once stifled corrosion by preventing the iron from going into solution, thus keeping the steel surface passive. The result is shown in the graph curves above, where a quickly rising positive potential remains constant throughout the test.

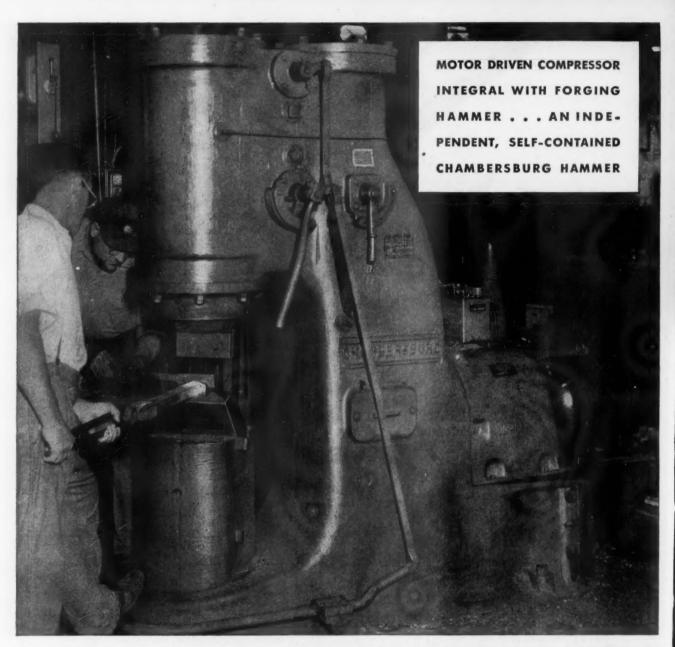
Write for New Booklet—"Red Lead in Corrosion Resistant Paints" is an up-to-date, authoritative guide for those responsible for specifying and formulating paint for structural iron and steel. It describes in detail the scientific reasons why Red Lead gives superior protection. It also includes typical specification formulas ... ranging from Red Lead—Linseed Oil paints to Red Lead—Mixed Pigment-Varnish types. If you haven't received your copy, address nearest branch listed at right.

All types of metal-protective paints are constantly being tested under all conditions at National Lead's many proving grounds. The benefit of our extensive experience with Red Lead paints for both underwater and atmospheric use is available through our technical staff.



NATIONAL LEAD COMPANY: New York 6, Buffalo 3, Chicago 89, Cincinnati 3, Cleveland 13, St. Louis 1, San Francisco 19, Beston 6 (National-Boston Lead Co.); Pittsburgh 30 (National Lead & Oil Co. of Penna.); Philadelphis 7 (John T. Lewis & Bros. Co.); Charleston 25, W. Va. (Evans Lead Division).

DUTCH BOY RED LEAD



Now You Can Do Forging Right in Your Own Plant

Independent of steam or air lines, the Chambersburg Pneumatic Hammer may be placed wherever convenient in the plant. It is ready to operate as soon as the motor is up to speed, delivering its constant rhythm of blows, heavy or light, at the will of the operator. It will forge faster . . . better . . . at a higher temperature . . . because of higher impact speeds, heavier anvil construction and more powerful blows. It was designed with just that objective in view—to

Write for catalog 1275

make better forgings faster, to work the forging at higher temperatures and to produce the forging with the least possible operating expense. The success of this objective is attested by the increasing popularity of this hammer.

CHAMBERSBURG ENGINEERING CO., CHAMBERSBURG, PA.



CHAMBERSBURG

HAMMERS · CECOSTAMPS · PRESSES

BUDD PRESENTS

Four New Sleeping Car Accommodations

THE BUDGETTE THE CABIN THE DOUBLE BEDROOM
THE MASTER ROOM

It is conceded by everyone that the volume of public travel in years ahead will be far greater than anything known before the war. To capture a large and growing proportion of this traffic is the opportunity that lies before the railroads now. The public expects a modernized, vastly improved sleeping car service. The railroads will have equipment which will meet and exceed the traveling public's expectations. Numerous surveys have indicated their preferences. In the new accommodations presented here, Budd not only has designed from the passenger's viewpoint, but has taken into account the practical needs voiced by the railroads. These new accommodations provide the means to meet the more intensive competition of other types of transportation. They offer high capacity per car, greater flexibility, comfort and variety.

EDWARD G. BUDD MANUFACTURING COMPANY

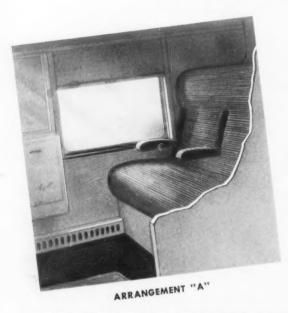
PHILADELPHIA

BETROIT . NEW YORK . CHICAGO . ST. LOUIS . SAN FRANCISCO . WASHINGTON

THE BUDGETTE

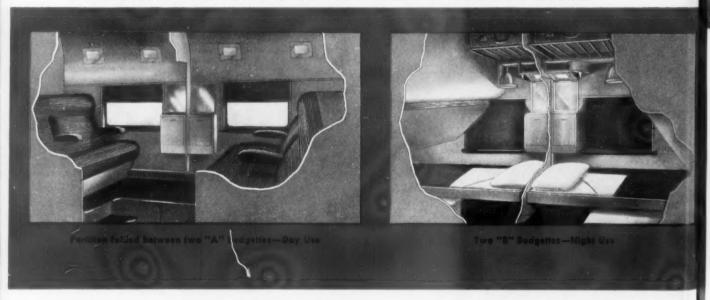
A sleeping car with 32 individual private rooms

In these remarkable rooms Budd answers a most insistent request—better and more salable private accommodations with high capacity per car. The Budgette is a great achievement in compactness. Each room has a comfortable seat for daytime travel; a full-length pre-made bed for sleeping. Each has its own toilet and lavatory, its own broad window, luggage rack, and other conveniences.





There are two arrangements of Budgettes. Seats and seat floor level of alternate pairs of rooms, "A" Budgettes, are on a slightly higher level, reached by two easy steps. All rooms are entered from the floor level of the car aisle.

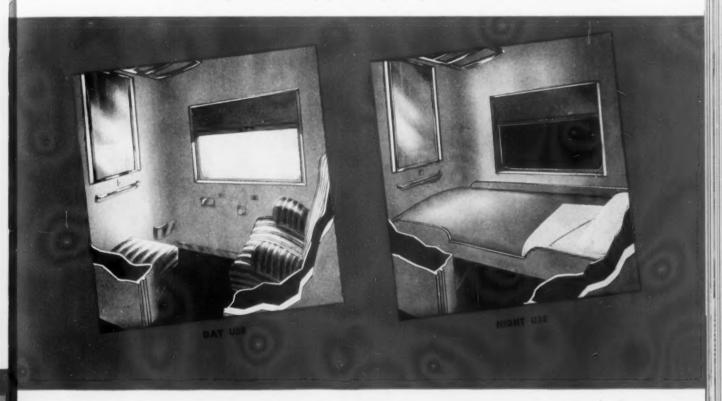


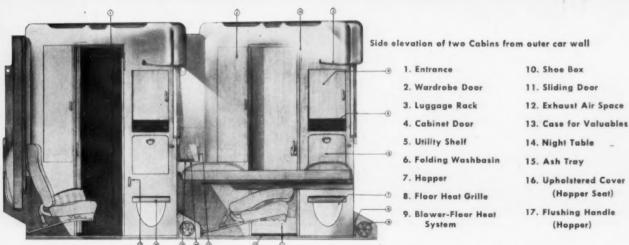
Within the limits of a standard size 85 foot car, 32 Budgette rooms provide private accommodations for as many passengers. These rooms can be made inter-communicating by folding back the partition between them. There

is also a general toilet and lavatory at the vestibule end of the car. A full height locker and the porter's seat are across the aisle. Two more full height lockers are located at the other end of the car. THE CABIN

22 private rooms to the car

By ingenious use of the floor area and placement of room appointments the Cabin sets a new standard of luxury and convenience for individual room accommodations. Every room is on the main floor of the car. The full height gives plenty of head room with a comfortable feeling of spaciousness. Appointments are modern and attractive. Every room has its own broad window, adjustable reclining seat, toilet, wardrobe, folding wash basin, mirror and shoe cabinet. Rooms have individually controlled heat and air-conditioned ventilation. The pre-made folding bed may be operated manually or electrically.





The Cabin Car has 22 individual room accommodations for day and night travel. The 22 Cabins are equally divided—11 on each side of the car, separated by an aisle twenty-four inches wide. Each Cabin is six feet four inches

long by three feet seven and five eighths inches wide. This is accomplished without duplexing or other encroachment of the passenger accommodations. Adequate service facilities are supplied at each end of the car.

THE DOUBLE BEDROOM

These luxurious new Double Bedrooms are of two types. Berths in room No. 1 are arranged across the car. Berths in room No. 2 are lengthwise of the car. Both rooms are equipped with two full width, full length berths, pre-made and ready for use when lowered in position. All obstructions are removed from the outer walls, permitting wide, 45", panorama windows in each room and full leg room at the window seats.



The distinguishing feature of this Budd design is the arrangement that provides a full length wardrobe and fully enclosed toilet facilities including a shower bath. By fold-

ing back a partition two Double Bedrooms are readily converted to a superior type drawing room or Master Room with six seats for daytime and beds for four passengers.

THE MASTER ROOM

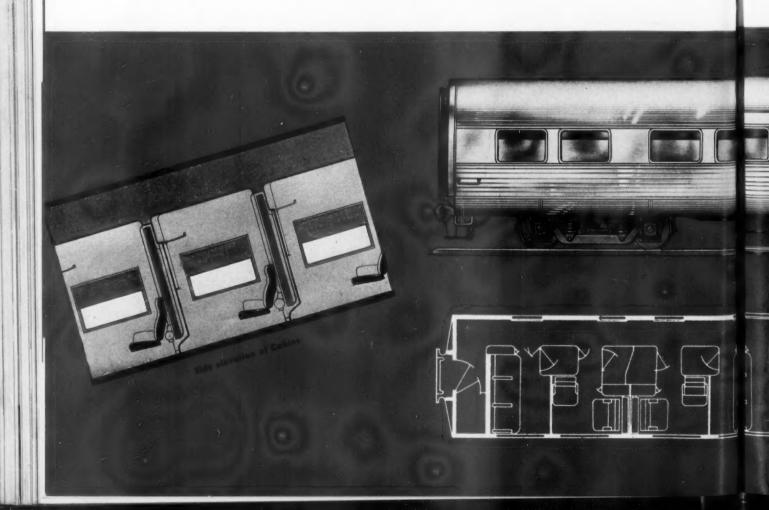
Most luxurious is the Master Room, an apartment with four beds and two enclosed toilet and wash rooms with shower baths. No need for passengers to leave the room while porter arranges the pre-made beds. At night the partition may be closed or left open as desired. When closed, a door within the partition provides communication between the two rooms. This is a convenience to those in the group who wish to retire early.



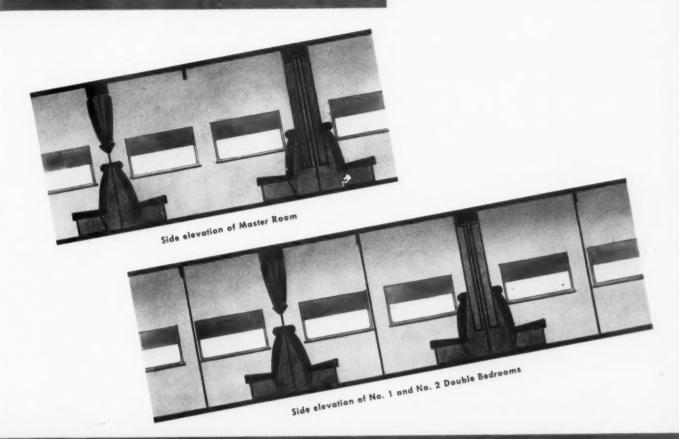
By day, the Master Room has richly upholstered seats for six persons, two wide windows, two wardrobes, two fully enclosed toilets, luggage racks, and ample space for moving about in comfort. The ready convertibility of two Bedrooms to a Master Room provides flexibility in room accommodations not heretofore available.

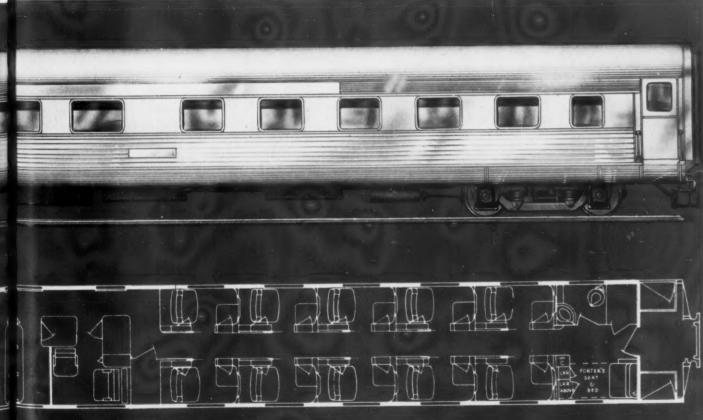
THE BUDD ALL-ROOM

A Budd Stainless Steel car made up of Cabins and Double Bedrooms brings an outstanding advance in a first class train of all-room accommodations. This car has the flexible facilities for single, double and multiple occupancy and is available in various combinations of Double Bedrooms and Cabins. Each car has three lockers, two of them full height of car, a general toilet, a drinking fountain, and porter's seat and bed.



SLEEPING CAR







EDWARD G. BUDD MANUFACTURING COMPANY

manufacturing plant in the world.

DIIII

Stainless Steel Has Passenger Appeal

The Empire State Express, built shortly before the war by the E. G. Budd Company, brought marked increases in passenger revenue. It is typical of the first trains that will be built as soon as stainless steel is again available. Ten years of experience with stainless steel passenger equipment on many railroads has shown that it is safe and durable Since the metal is resistant to rust and corrosion, it does not require painting and is very easy to clean and keep clean.

Many other industries are also designing new equipment to take advantage of the high strength and corrosion resistance of stainless steel. The permanent gleaming beauty of stainless steels contributes "salability" to many products.

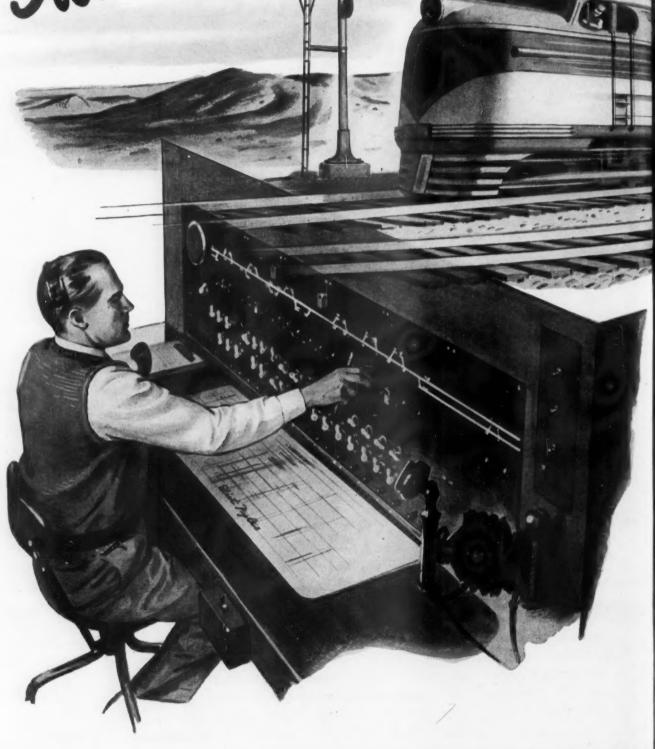


BUY AND HOLD UNITED STATES VICTORY BONDS AND STAMPS

Other uses of stainless steel are described in ELECTROMET REVIEW, published by ELECTRO METALLURGICAL COMPANY, a Unit of UNION CARBIDE AND CARBON CORPORATION. ELECTROMET does not make steel, but produces the ferro-alloys used in its manufacture. If you need this complimentary publication, write to ELECTRO METALLURGICAL COMPANY, 30 East 42nd Street, New York 17, N. Y.

LECTROMET

Steering Streamliners So they



99

RAILWAY AGE

don't stall freight!



Up to 50% of the traffic interference caused by super-speed trains can be eliminated by G-R-S CTC. You get higher average train speeds—smoother operation—reduced operating costs

When super-speed trains inflict serious "standby" delays on your slower passenger trains and tonnage freights — gumming up freight schedules, sapping revenue — the chances are 10 to 1 that the answer is some form of signal modernization.

Super-speed streamliners, even where a number of such trains are operated, can be handled with a minimum of interference by G-R-S Centralized Traffic Control. Power-operated switches cut the time required to get slow trains into the clear. The automatic block portion of the system permits operation with just enough headway to maintain "clear" signals for the super-speed train.

With CC, moreover, supervision and control are centralized under a single operator who can "steer" the streamliner safely over the route. He can instantly change meeting and passing points. Higher average train speeds are maintained. More freight tonnage and more passengers can be moved at less cost per mile.

These are not vague claims. They are provable — and "forecastable" for your specific conditions. G-R-S engineers would like to make a study of your problem with a view to estimating exactly what you can expect from Centralized Traffic Control. Call on them via our nearest District Office.

GENERAL Railway Signal Company

This advertisement is appearing in full color in the November 17th issue of The Saturday Evening Post. Some 12,000,000 readers will get this message about America's railroads.

GREAT DAYS ARE AHEAD FOR MERICA'S RAILROADS

All Americans can be justly proud of our railroads and the men and women running them. They have performed miracles in wartime transportation.

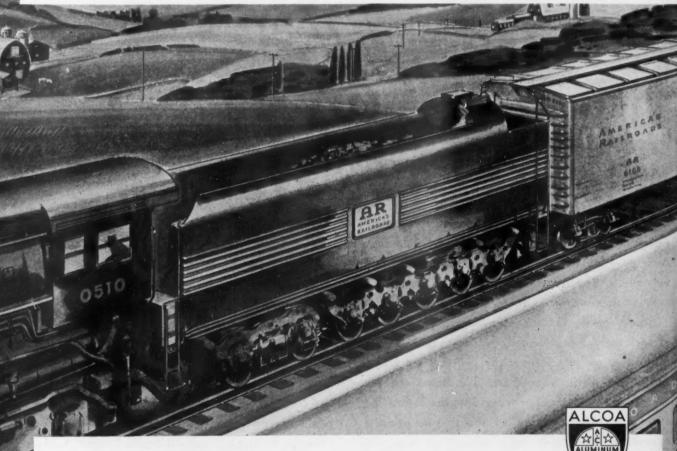
Thanks to them, America was able to fabricate ships hundreds of miles from sea coasts . . . build the world's largest navy . . . create the greatest airpower . . . transport eleven million citizens to and from training camps ... equip, feed and maintain them.

It was the biggest transportation job in all history! And our railroads carried this load in spite of shortages of manpower and equipment. At the same time, they did a magnificent job of serving the home front.

This unconquerable spirit of our railroad men and women assures new achievements in transportation, Greater comfort, safety and convenience will be offered travelers. Faster freight schedules will enable shippen to get goods to markets quicker, fresher.

Great days are ahead for America's railroads. And, we are proud of the part Alcoa Aluminum is playing in cutting down dead weight, increasing efficiency, reducing maintenance costs in railroad equipment already built and planned for the future.

ALUMINUM COMPANY OF AMERICA, 2178 Gulf Building, Pittsburgh 19, Pennsylvania.



LCOA ALUMI





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railroads. And num is playing sing efficiency, ad equipment

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STATION EXTERIORS—A)cad Aluminum brings naw, enduring beauty to exteriors of relifred stations when used for decerative grilles, seandrals, windows, doors and realing.

















Improved insulation is now available for passenger cars -a fire-safe, rot-proof insulation that saves more than half the insulation weight with better thermal and acoustical efficiency. SUPERLITE FIBERGLAS, a development for critical aircraft insulation, combines all the properties desirable for new, lightweight trains-ease of handling and application, complete fire-safety, nonadsorbance of moisture, no sustenance for vermin, proof against rot-with a hitherto unheard of lightness, as low as % lb. per cubic foot!

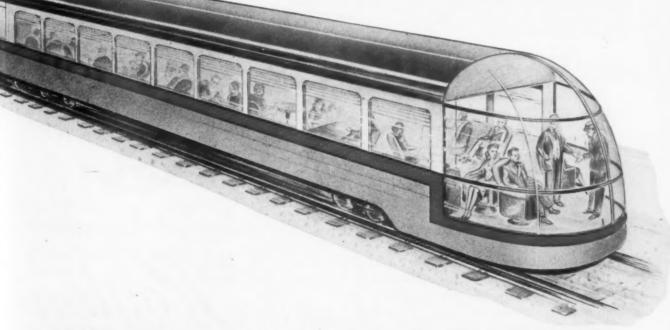
Ins

Ins

Insulation in Wartime-Insulation Today!



SUPERLITE FIBERGLAS is economical because it makes possible a far greater insulating efficiency with a reduction in weight—a saving in heat, an increase in passenger comfort. It is durable and non-corrosive—resistant to moisture and provides no sustenance for vermin. The Superlite Fiberglas fibers, bonded with a thermo-setting binder into a pliable, easy-to-install, resilient blanket will not settle or shake down.





Superlite Fiberglas* is sold to Railroads and Car Builders exclusively by

GUSTIN-BACON MFG. COMPANY

KANSAS CITY 7, MISSOURI



New York

Philadelphia

Chicago

Tulsa

Houston

Fort Worth

San Francisco







INTERIORS: Koylon adaptability is especially suited for upholsterers and designers of tomorrow's interiors

HOW THE FUTURE FEELS

Comfort will be a major factor in your future business. Making comfort is our business. For ten years we have been producing comfort in the form of "U.S." Koylon Foam—the cushioning material that has made a science of Comfort Engineering.

Buoyant Koylon actually lifts the body—flows away weight—fairly breathes comfort because of its air-in-latex texture. It is ideal for any type of seating and mattressing—completely satisfying to the rest-hungry. Its natural cleanliness and permanence—its freedom from bothersome parts to wear out—make Koylon an especially inexpensive item to maintain.

If you're future minded—you're going to be Koylon minded. When Koylon is available again —you'll discover how the future feels.



Comfort Engineered
"U.S."

Coylon

FOAM



UNITED STATES RUBBER COMPANY

"U.S." KOYLON FOAM DIVISION . MISHAWAKA, INDIANA

New standards of performance in operation, riding ease, and safety, are being set by the A.S.F. Ride-Control Truck on railroads all over America. The 50,000 miles of test train study back of this truck already has resulted in millions of miles of better freight car service.

MINT. MARK OF OFFINE CAST STEEL

ern freight car truck are alread in service or on order by 44 rail roads and private for

A-8-F Chicle-Control TRUCK (AS)

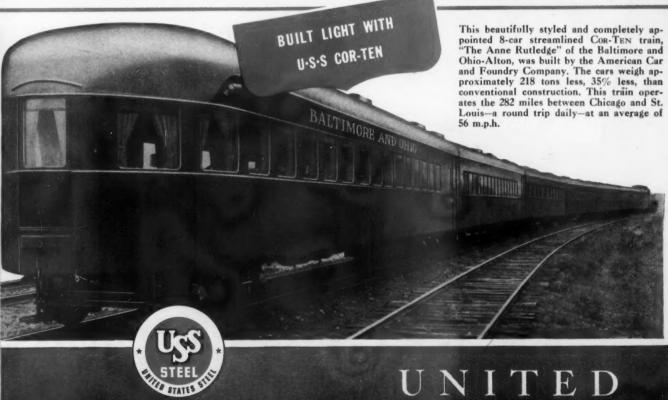


SCHOOL STATES & ESERTIANT PRINTING CONTROL

AMERICAN STEEL FOUNDRIES

79% of America's traffic-building





streamlined passenger equipment

has been built, all or in part, with

U·S·S Stainless Steel and U·S·S COR-TEN

In 1933 the first lightweight, streamlined passenger car was an innovation that startled the railroad world. Today, any new passenger equipment that is not streamlined and built light is almost equally startling.

Sound, economic reasons are behind this change in railroad thinking.

As one streamliner after the other was put into service, all the glowing promises that were made for lightweight, streamlined passenger cars—greater speed, reduced operating costs, high availability and increased revenue—were dramatically fulfilled. It is an accepted fact that the revitalization of the railroads' passenger business since 1933 has been due mainly to the streamliner—and to the lightweight equipment which makes the streamliner possible.

U·S·S Stainless Steel and U·S·S COR-TEN were used to build America's early streamliners. In 1941—the year before the war shut off the supply for railroad construction—these steels were used in 90% of the lightweight passenger equipment put into service. To date, a total of more than 2,800 lightweight rail passenger units have been built using U·S·S Stainless Steel, U·S·S COR-TEN, or both.

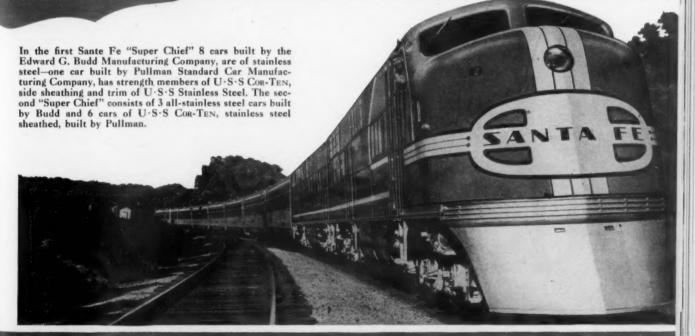
Here, we believe, is substantial evidence that in these higher strength steels, leading builders have found the most practical materials for reducing passenger car weight *economically*—and without any sacrifice of strength or safety. It is on their record of demonstrated accomplishment that we recommend these service-tested steels for your earnest consideration.

AMERICAN STEEL & WIRE COMPANY, Cleveland, Chicago and New York
CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh and Chicago
COLUMBIA STEEL COMPANY, San Francisco
NATIONAL TUBE COMPANY, Pittsburgh

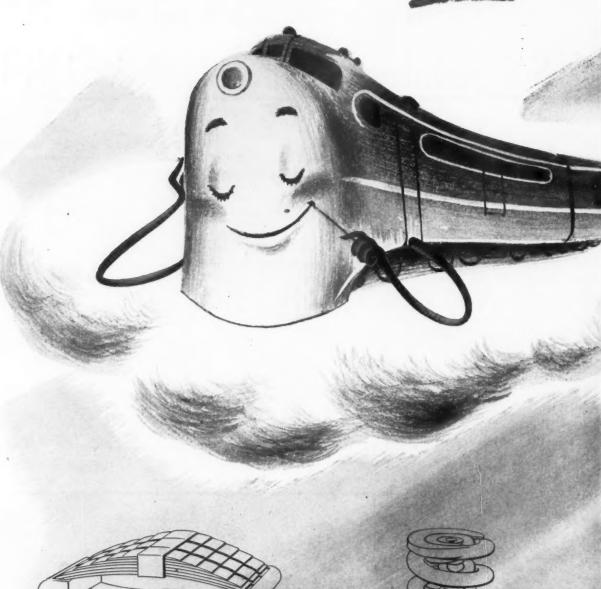
TENNESSEE COAL, IRON & RAILROAD COMPANY, Birmingham

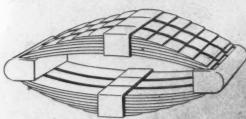
United States Steel Supply Company, Chicago, Warehouse Distributors
United States Steel Export Company, New York

BUILT LIGHT WITH
U·S·S STAINLESS STEEL
AND U·S·S COR-TEN

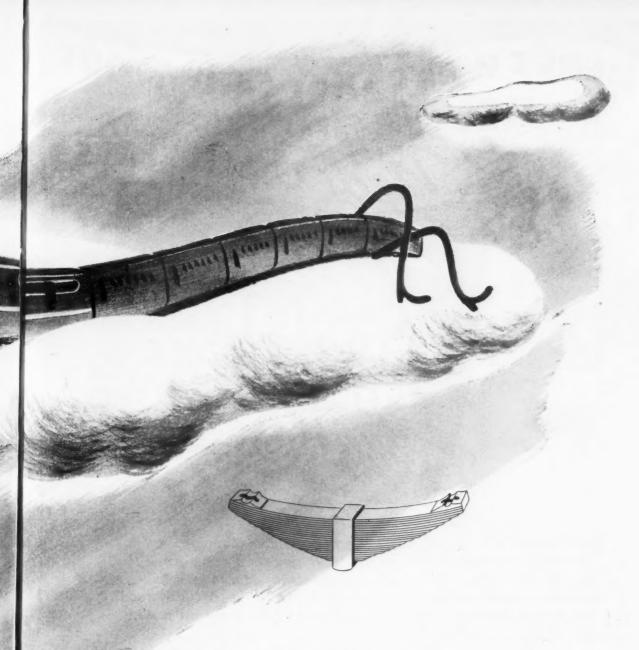


Railroad Popularity Rides On Springs









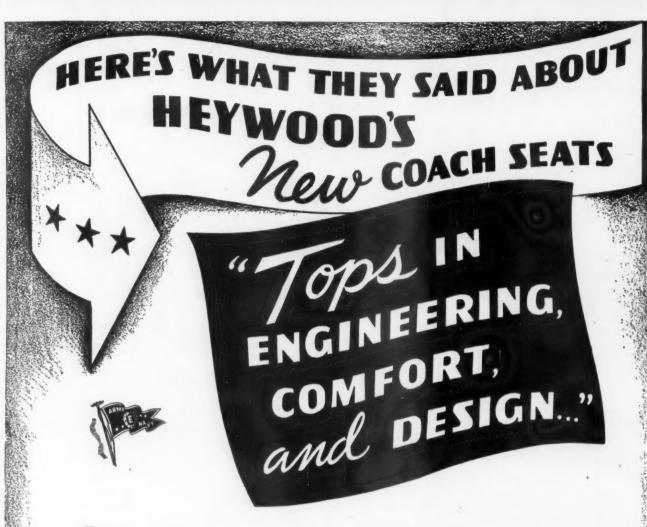
RIDING comfort, or its lack, can help or damage any railroad.

The riding qualities resulting from correct design and fabrication of RAIL-WAY STEEL SPRINGS on a large number of America's leading railroads are helping promote passenger and freight traffic, friendly public relations, longer equipment life, greater factor of safety, and lower maintenance expense.

RAILWAY STEEL SPRINGS of standard or special design can be supplied for any

railroad purpose and problem to your complete satisfaction.





In Chicago, last month, mid-western passenger managers, equipment men, and engineers saw the NEW Heywood coach seats for the first time. They sat in them . . . operated the mechanisms . . . studied the smart designs. In fact, they went over the NEW Heywood line with a fine tooth comb. And almost to the man, this is what they said:

"The new Heywood coach seats are tops in engineering, comfort, and design."

• That's quite a tribute to Heywood designing and manufacturing "know-how". After you have had a chance to see the NEW Heywood seats, we think you will agree with those who have already seen them!

Sales Offices at GARDNER, MASS., NEW YORK, CHICAGO, PHILADELPHIA

HEYWOOD-WAKEFIELD Established 1826 • Gardner, Massachusetts

TRANSPORTATION SEATING DIVISION

THEY FEEL THEY'RE GOING REALLY MODERN



ventilator, an air-valve yielding gently to slightest pressure, resilient under heaviest weight. Foamex replaces old-style springs and stuffing with one welded-together material that's both sag-proof and lump-proof—now electronically processed to make it still more durable.

Both Foamex and Velon have proved themselves in transportation seating through years of wartime abuse. Both are now available to you. Write Firestone, Akron, for details.

Listen to the Voice of Firestone Monday Evenings over NBC



reston

BARBER - COLMAN

PRODUCTS FOR RAILWAY SERVICE



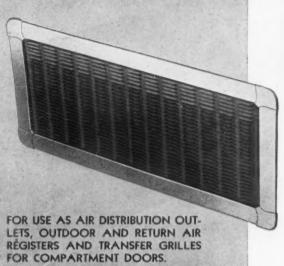
UNI-FLO Grilles and Multi-louver Registers are ideal for railway service. They are fabricated of sheet steel. The core construction is rigid. The fin strips are folded and have pressed-in support bars to give a firm interlocking assembly. Registers have a series of one inch wide overlapping blades to provide tight shut-off.

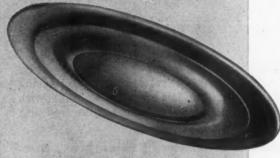
Venturi-flo

VENTURI-FLO Ceiling Outlets are fabricated of spun steel members, and have been designed for center duct air distribution systems. They have flow characteristics similar to those of the well-known fluid flow measuring device, the Venturi meter. When desired, provision can be made for quick removal of the unit for cleaning the supply duct.

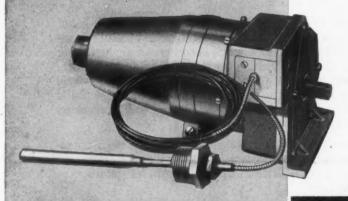
SELF-CONTAINED POWER UNITS

Self-Contained Power Units have been designed for automatic control of oil and cooling water temperatures. These accurate and dependable units maintain temperature by positioning the cooler shutters. They give true proportioning operation without overrun or "hunting".





FOR OVERHEAD AIR DISTRIBUTION IN PASSENGER CAR SPACES, SMOKING ROOMS, AND PASSAGEWAYS.



FOR PROPORTIONING CONTROL OF DIESEL ENGINE OIL AND COOLING WATER TEMPERATURES.

BARBER-COLMAN

COMPANY

ROCKFORD • ILLINOIS

Measured by the service given, molybdenum steel crank pins are really economical.





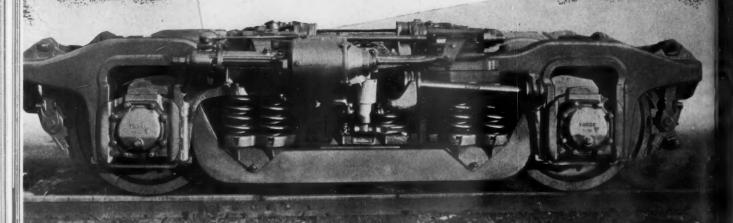
MOLYBDIC OXIDE, BRIQUETTED OR CANNED .
FERROMOLYBDENUM . "CALCIUM MOLYBDATE"

Climax Molybdenum Company
500 Fifth Avenue New York City



Specify COMMON

Passenger Car Trucks...





The advanced design of COMMONWEALTH 4-Wheel Passenger Car Trucks assures the best possible riding qualities at high speeds, freedom from vibration and lateral sway, and insures greater passenger comfort and safety.

This modern truck utilizes a Commonwealth one-piece alloy cast steel truck frame, bolster, and spring plank or bolster roll stabilizer—providing greater strength with minimum weight, and utmost serviceability at lowest maintenance expense.

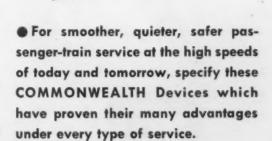
GENERAL STEEL

PERFORMANCE

and

One-Piece, Cast Steel **Platform Center Sills**

COMMONWEALTH one-piece cast steel Platform Center Sills provide the simplest, strongest, and best construction for high-speed, modern, light-weight passenger cars. They minimize damage to cars in collision; meet all safety standards—and achieve areat strength without an increase in weight.



CASTINGS EDDYSTONE, PA,



Overhead. G-E fluorescent lamps in continuous lines of light impart a cheerful atmosphere to this dining car interior. G-E incandescent lamps give added down light over the tables.

Good lamps are the heart of good lighting

FILAMENT

The Constant aim of

General Electric Lamp Research
is to make G-E Lamps

For tomorrow, G-E Slimline lamps will join with G-E fluorescent and filament lamps to bring you new help, greater service from lighting.

GE LAMPS
GENERAL BELECTRIC

SERVICE REPORT THE PARKER APPLIANCE COMPANY

This is the present status of the case in which a parker Triple Fitting replaced a wrought iron elbow, which was braised to the static pressure lead in a gas meter.

under pressure surges -- from 5 pounds to 4,000

pounds -- the wrought elbows frequently exploded, destroying the meter dial and spraying out broken metal and shattered

place.

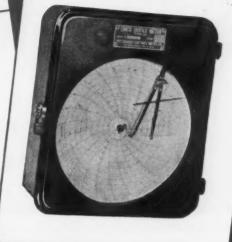
Meter readers feared to go mear these meters, ser-wice costs were high and the company was losing business. glass.

When Parker 1/8" triple fittings replaced the wrought

iron elbow, results were:

- 1. Reduced installation time.
- Safe handling of all pressures involved. We injured hands for workmen (installation was
- in a hard-to-reach corner).
- Whered type fitting easily serviced, if necessary, by oustomer's maintenance men.

Company then made same replacement on equipment in a service — all trouble eliminated. Association promoting industrial gas maters reported that Parker triple type fitting has proper flare angle to withstand high pressures, and provided tight connection without injury to tubing.





The patented Parker Triple Coupling—easy to install and service-proof against leakage and vibration.

The principle of this coupling is the basis for modern Fluid Power Systems.

The record of Parker couplings, valves and fabricated tubing is one of complete dependability in both war and peace.

Whatever you make, or plan to make, consult a Parker Fluid Power engineer on tubing systems for either fluid or power transmission. The Parker Appliance Company, 17325 Euclid Ave., Cleveland 12, Ohio.

FLUID POWER PRODUCTS FOR ALL INDUSTRY

YOUR PASSENGERS PREFER FLUORESCENT LIGHTING



RAILWAY FLUORESCENT LIGHTING NEEDS & L DC-AC CONVERTERS

In the competitive transportation field of today modernization is recognized as a necessity. For passenger illumination the trend is definitely toward fluorescent lighting.

EL VIBRATOR CONVERTERS MOST EFFICIENT. EL Vibrator Converters are the most efficient and economical means of providing your coaches, diners, lounge cars and sleepers with modern fluorescent lighting.

FOR RADIO EQUIPMENT, TOO. Two-way radio operation of trains is also provided for by the EL Vibrator Converter. It is likewise the means of giving your passengers the extra convenience of standard radio reception and electric razor outlets.

DESIGNED FOR RAILWAY USE. With railway needs in mind, **EL** developed a compact, lightweight power conversion system. It operates ten 42" Slim-Line fluorescent lamps from 32 volts DC or any other input voltage desired. For larger number of lights, multiple units may be used.

This EL system incorporates dual series circuits and the simplicity of series wiring. It provides more than 30 lumens of light per input watt as compared with less than 15 lumens per watt for old fashioned incandescent types. Individual lamp control is available where required and a constant level of light is assured by inherent voltage regulation.

TESTED IN RAILWAY USE. In actual railway car installations, **EL** Vibrator Converters have been tested and reliability thoroughly proved over a period of years.

For railway fluorescent lighting, you need EL DC-AC Converters.

EL FLUORESCENT DC-AC CONVERTER. Model 2026 operates ten 42" Slim-Line fluorescent lamps. Providing instantaneous starting and high efficiency, it is available for these input voltages: 12, 24, 32, 110, or 600 volts DC.

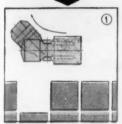
Dimensions are 14 % x 13 x 8.



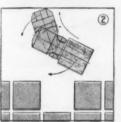
VIBRATORS AND VIBRATOR POWER EQUIPMENT FOR LIGHTING, COMMUNICATIONS, ELECTRIC AND ELECTRONIC APPLICATIONS

New Baker ARTICULATED Fork Truck cuts aisle requirements

How the BAKER ARTICULATED FORK TRUCK saves time and space placing loads

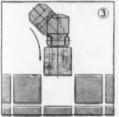


The driving section swings away from the load spot.



2. Both sections rotate about 25 degrees around turning center.

C



3. Truck articulates, lining load perpendicular to aisle.



4. Truck moves forward, spotting load in position.

Revolutionary new principle increases available storage area. CANNED SALMON

A basically new design* involving a new method of steering by "articulating" the frame, permits swinging the load to line it up in position without lining up the truck itself. Thus this truck requires about two feet less space for placing loads at right angles to aisles. It needs less clearance on turns, and speeds carloading or any other handling operation where loads must be lined up or positioned in congested areas.

Specific advantages of this truck are:

- 1. Works in narrower aisles.
- 2. Turns in a smaller radius.
- 3. Spots loads quicker and easier.
- 4. Control units are more accessible.
- 5. Simpler Steering design cuts maintenance.
- 6. Permits mechanization of handling where hand trucks were necessary because of space limitations.

Field tests in both warehouse and production operation have proved the many advantages of this new truck. For complete specifications request Bulletin 1330.

*Licensed under Stevenson Patent No. 2,284,287.

Designed primarily for efficient warehouse operation



BAKER INDUSTRIAL TRUCK DIVISION of The Baker Raulang Company

2172 WEST 25th STREET • CLEVELAND, OHIO In Canada: Railway and Power Engineering Corporation, Ltd.



A LOOK INTO THE FUTURE OF DECORATIVE PLASTICS!

Most architects who have used Formica, and therefore have had personal experience with it, see a large future for the material in afterthe-war building.

They see a big expansion of its use in many of the applications in which it has already a record of many years of success. They are preparing to specify it for much used doors, such as those on train, bus and air terminals, counter paneling and counter tops, column covering, wainscot, toilet stalls, shelving and many others.

You will find it in excellent condition, looking

almost as it did the day it was installed for these purposes, in some of the most prominent public buildings in the country.

Formica is harder than marble and very durable under wear. It is non-porous and stain proof. It is available in a completely cigarette-proof grade for horizontal surfaces. There is a wide range of modern colors, patterns and "Realwoods" in which an actual veneer is introduced into the plastic sheet.

It resists all the various disasters that used to require frequent refinishing of surfaces. It is almost completely upkeep-free.

THE FORMICA INSULATION COMPANY, 4621 SPRING GROVE AVENUE, CINCINNATI 32, O.



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wide



DIRECT as an arrow to the target—that's the way your voice can reach any point in a vast area with the G-E Super-Aire Speaker. The G-E Super-Aire Speaker is a complete public address system in compact and economical form.

Ruggedly designed for hard field usage, in any climate or weather, it can be employed in the tough day-by-day jobs of freight yard traffic control, harbor control, giant dam construction projects and a host of similar widespread operations. Even the pre-

cision voice element can "take it" without fracturing under the assault of terrific shock or vibration.

Where no power supply is available, a small gas engine can take over the work of operating the compressor and furnishing power for the amplifier. Mobility is just one among the many advantages of the Super-Aire Speaker that makes it the perfect unit for the job.

The G-E Super-Aire Speaker is modern—and today it is available "must" equipment on large projects.

Write for complete information to: Electronics Department, Specialty Division, General Electric Company, Syracuse, N. Y.

See your G-E distributor for Universal Radio Parts, P. A. Systems, Crystals, Receiving, Industrial and Transmitting Tubes, Laboratory and Service Test Equipment

GENERAL	(gg)	ELECTRIC

Electronics Department General Electric Comp	oany, Syracuse, N. Y.	RA-LI
We are interested in fur the G-E Super-Aire Sp		erning
	wn use Distribution	
Name	,	
Company		

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reduces delays — saves untold running hours — speeds shipments — saves tie-ups and "set-offs" — by sounding a warning signal in the engine cab when temperature rises to a danger point in the journal box indicating a hot-box may ensue!



Thousands in use on American railroads prove the efficiency of this sturdy, vibration-proof, dust-and-vapor sealed! super-sensitive Thermoswitch

Write for full details to

Fenural, Inc.

OR COMPLETE TEMPERATURE CONTROL

45 Pleasant Street, Ashland, Massachusetts

WEA

Inner Seal FOR COMPLETE PROTECTION

All the good features of older types of weatherstrip... plus built-in rustless spring wire construction in live sponge rubber... make INNER-SEAL protection against cold, dust and rain complete... the protection you've been looking for. Available in a wide variety of sizes and colors to meet every weather-proofing need. Write for samples and details of INNER-SEAL today. AIRCRAFT

RAILROADS

SHIPS, HOMES

TRUCKS, CARS

REFRIGERATION



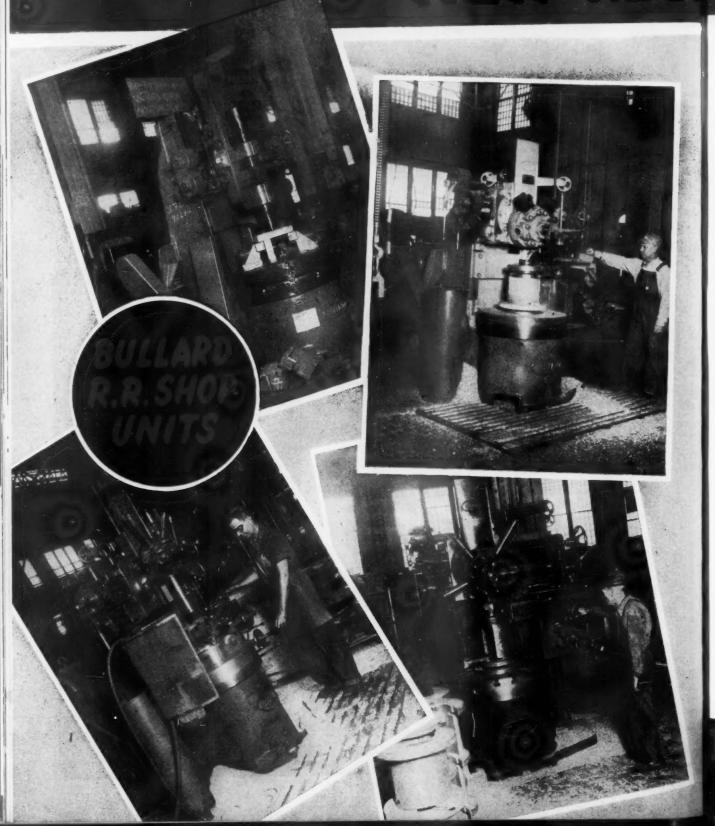
BRIDGEPORT FABRICS, INC.

Established 1837

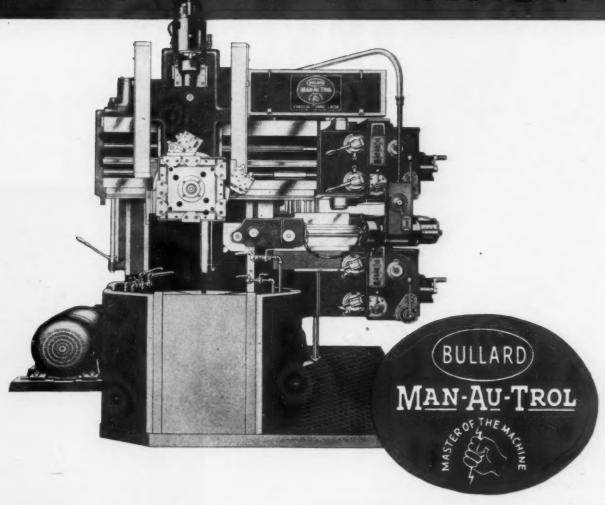
BRIDGEPORT · CONNECTICUT

WEATHER STRIPPING

Just a few recent to and now a NEW MACH



installations. HINE for TOMORROW



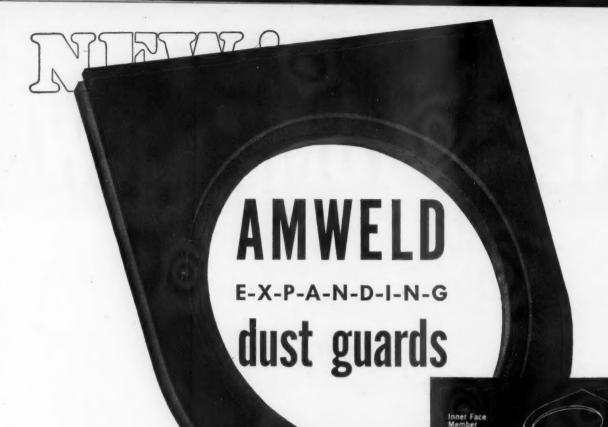
THE cost-cutting performance of BULLARD Vertical Turret Lathes is a well-known fact in practically all of the railroad shops in North America.

Always ready for any emergency, BULLARD Engineers not only prepared plans to supply the war defense plants but also worked overtime to take care of all industries.

For the past year, new BULLARD R.R. shop units have been rolling on schedule to their points of installation. All machine tool supervisors want "Bullards" to help them in the reduction of production costs.

Illustrations on the left page show a few of the BULLARD Units recently installed in railroad shops—the Driving Box Borer and Facer still carries the shipping label.

Competition in the transportation industry demands constant progress in repair methods — BULLARD engineers have made another sensational step forward with the development of the MAN-AU-TROL Vertical Turret Lathe. THIS IS THE NEW AUTOMATIC UNIT YOU HAVE BEEN WAITING FOR — why not investigate?



live 100% seat

AMWELD Expanding

Dust Guards assure positive protection against dust, water and grime in journal boxes. The complete unit consists of only four pieces—two composition face members, metal plate with six spring steel springs and a garter spring. All metal is completely cased to avoid any possibility of wear on the axle. The springs hold the guard snugly against the inside and outside faces of the dust guard well—expand as required and provide a perfect seal at all times.

AMWELD Expanding Dust Guards are sturdily constructed — no loose parts and are applied without tools. They fit all standard AAR journal boxes without change. Their performance is not affected by oil, moisture, dust, ice or temperature. They protect journal packing, reduce lubrication troubles and costs, and minimize hot boxes because the boxes stay sealed. They increase the life of bearings, journals and packing. For more detailed information write.

RAILWAY EQUIPMENT DIVISION

Steel Spring Plate Outer Face Member Resilient Composition Inner Face Member Garter Spring Inside Face of Dust Guard Well Outside Face of Dust Guard Well Outside Face of Dust Guard Well

THE AMERICAN WELDING AND MANUFACTURING CO.

WARREN, OHIO

No

EPENDABILITY PROVED in a greater variety of applications proved than *any other diesel* In heavy-duty trucks, both on the highway and off-the-highway. proved In all types of heavy. In all types of heavy. duty earth moving, road duty earth moving, road building and material headling equipment bundling equipment for contractors and Proved aggregates producers. In tuga, ferry boats, commercial fishing boats, fire boats, as well as pleasure craft. as pleasure crart for both propulsion and auxiliary service. proved In yarders, loaders, trucks, tugs and saw. mills . in all classes of portable and station. In every kind of min-In every kind of muning power application both above ground both above ground and below hauling, ping, loading, hauling, grationary and marine. or portable and stands. ary service . . . on the show and in the mill. proved In rotary rig, cable tool, pumping, generated, and well service ating and well service anng and well service the important petro. proved the important petros. leum producing areas. In locomotives, motor trains, maintenance of trains, maintenance of way and other types of way and other types of equipment operated by the nation's railroads. Read the Record 1. In the world's largest petroleum producing region-the Mid-Continent Area—Cummins Diesels power more rigs than any other diesel engine. 2. More yarders, loaders and trucks in the Northwest Woods are powered by Cummins Diesels than by any other single make of diesel engine. 3. On the Mesabi Iron Range -largest in the world-most of the rubber-tired earth and ore moving equipment is Cummins CUMMINS Diesel-powered. 4. More than 90% of the longline, franchise-operated, heavyduty, diesel-driven trucks in the 11 Western States are Cummins Diesel-powered. CUMMINS ENGINE COMPANY, INC.



Which is the bigger saving to you?

10% of the pebble...or the ripples?



YOUR eyes are sharper, today, when they look into costs. They have to be. For your competitive position, doing your part toward maintaining full employment, depends on how much you reduce costs, increase value, broaden your market.

Take the cost of printed forms, for instance. There was a time when it was dismissed as a trifle, a "pebble" as compared with other costs. But that was before many realized that the *true* complete cost of printed forms are the "ripples"—the time and effort required to write, handle, route and file them—which adds up to from 10 to 50 times the cost of the forms, themselves.

It was also before many recognized that record

systems of control are the nerve centers of business ... affecting control over men, materials, machines. It was before many realized that changing paper work to working papers, through scientific paperwork simplification, could mean overall savings of five, six, even higher figures.

Let us demonstrate how much the opportunity for cost reduction in these "ripple" areas of your business can amount to. Let us show you how much MORE Standard offers, to capitalize on that opportunity.



THE STANDARD REGISTER COMPANY

Manufacturer of Record Systems of Control for Business and Industry
DAYTON 1, OHIO

Pacific Coast: Sunset McKee-Standard Register Sales Co., Oakland, California. Canada: R. L. Crain, Limited, Ottawa. London: W. H. Smith & Son, Ltd.

SUPERIOR CAR DOORS

are
LIGHTWEIGHT
DOORS



Superior Car Doors are approximately 22% lighter...with no decrease in strength.

They are doing their part toward light-weight construction ... their saving in dead weight permits increased pay-load.

SUPERIOR CAR DOORS

- RIGID CONSTRUCTION
 - LIGHT WEIGHT
 - LONG LIFE
- WEATHER PROOF
 - FREE ROLLING
 - NO SLAMMING

SUPPRIOR CAR DOOR COMPANY, McCormick Building, CHICAGO



"The Jig's Up!" That's the way Consolidated Vultee Aircraft Corporation captioned the above picture as run in their publication, The Consolidated News. It shows a Hyster 150 Fork Lift Truck raising a gigantic Liberator jig, to lower it gently onto a waiting truck. They say, in part, "Lifting the many-tonned jigs of iron and steel is mere child's play to the mighty Hyster Lift Truck which raises mammoth loads with the greatest of ease."

Literally and figuratively, the "jig's up" for bottlenecks of production, too, when Hysters appear on the job. Movement of vitally needed parts and materials is speeded up; schedules are maintained and improved. Handling costs are lowered.

Hard to handle? Not at all! A Hyster Fork Lift Truck steers as easily as the finest automobile. Lightly or heavily loaded, it responds to finger-tip pressure. Turning the steering wheel operates a valve—hydraulic pressure does the work—not the driver's brute strength.

This means quicker maneuverability, time saved, more work done. Road shocks are absorbed, not transmitted to steer wheel. Adds to driver comfort, prevents fatigue, safeguards loads. From the Hyster 20 (2000 lbs. capacity) to the Hyster 150 (15,000 lbs. capacity) there is a model suited to your needs. Write for literature.



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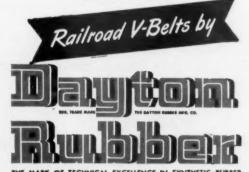
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There can be no failure of the under-car drive on cars like this one. Designers of tomorrow's trains are creating railroad cars that will provide travel comforts and conveniences far beyond the dreams of a few short years ago. But they are comforts and conveniences that are placing heavier and heavier demands on under-car drives. That is why the majority of far-sighted designers are specifying Dayton "D-R" V-Belt Axle Drives. They know that Dayton drives have been in use on railroad cars for 15 years without a known case of mechanical failure due to V-Belts—one strong reason why more than twice as many air-conditioned cars are equipped with Daytons than with any other type of under-car drive. A Dayton railway specialist will make available to you the knowledge gained from these years of experience. Write today.

THE DAYTON RUBBER MANUFACTURING COMPANY
DAYTON 1 - OHIO



Advantages of the Dayton "D-R" V-Belt Axle Drive

1. Quiet and smooth performance with high availability—in 15 years a mechanical failure due to V-Belts has never been reported.

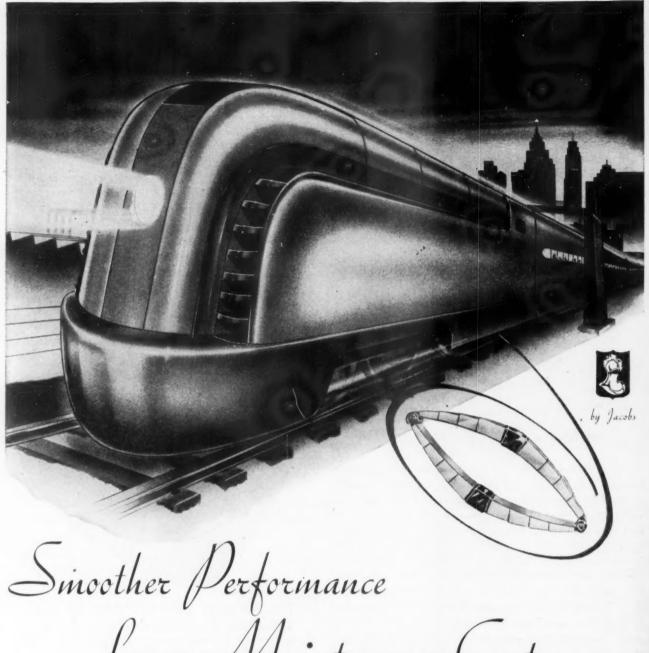
2. Provides a flexible, cushioned connection between the car axle and the driven unit that protects generators and other equipment should a mechanical failure occur.

3. It is convenient and economical to install . . . no complicated or expensive truck changes are necessary . . . no special axles are necessary .

4. Duplicate equipment is not necessary to take care of emergencies—when wheel changes must be made, only the axle pulleys need to be removed.

5. It greatly reduces maintenance cost on mechanical equipment as well as on the drives themselves.

It imposes a minimum weight on the car axle.
 It is easy and simple to install, safe and dependable in operation, and insures uninterrupted performance,



Lower Maintenance Costs

While conducting research for improvement of riding quality of railway cars, engineers introduced the application of automobile type steel spring-covers for protection of the leaf springs used on most of the existing railway passenger car and locomotive trucks.

Road tests proved that elliptical leaf springs, when equipped with Ajax Steel Spring-Covers by Jacobs, provided consistently better riding performance and longer spring life.

The Spring-Covers keep dirt and water out and retain the lubricant which protects the springs from wear and stress.

Ajax Steel Spring-Covers, as well as other accessories for railway passenger trucks, designed to radically improve passenger comfort, are marketed as a unit by E. A. LUNDY, INC., 420 Lexington Avenue, New York, New York.

MAIN PLANT COBS CO. 1043 SPRUCE ST., DETROIT 1, MICHIGAN

DALLAS PLANT, Detroit, Michigan GRAND RAPIDS METALCRAFT DIVISION Grand Rapids, Michigan

DOWAGIAC PLANT, Dowagiac, Michigan INDIANAPOLIS PLANT Indianapolis, Indiana

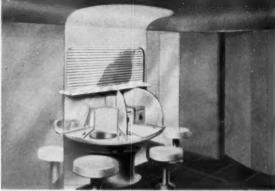
SUBSIDIARIES: PARTS MANUFACTURING CO., Traverse City, Michigan CONTINENTAL DIE CASTING CORP., Detroit, Michigan PLANT #2, Holly, Michigan







A four-seater couch provides "comfortable smoking" for men passengers and is complete with arm rests which lend comfort but can be collapsed to care for the indisposed or prostrated passenger. And in the wall above are four commodious wash basins which fold out to provide ample facilities for the morning rush.



There's plenty of appeal for milady in the innovation of a semicircular make-up and wash-up table. For each of three persons it provides a vanity complete with wing mirrors, shelf of towels, cake-of-soap dispenser, and facial tissues. By merely raising a lid the vanity is transformed into a commodious wash stand.

THE kodachrome photos herein, colorful as they are, can merely suggest the eye-appeal, luxury, and convenience of a.C.f.-designed streamliners. For the salesman, there is repose in deep, roomy chairs—with feet off the floor in hassock-like comfort, for the executive speeding to conference or convention, secretarial service en route; for the mother with baby, privacy of the "Junioroom" with convertible crib and milk-warming facilities; for milady, there

is every beauty accommodation. For ALL, Q.C.f. defines a newer, richer conception of railroad travel with glare-controlled daylighting, scientific nightlighting, better seating, more convenient baggage storage, sanitary toilet facilities, improved vestibules, wider doors, and car arrangements that accelerate passenger movement. Q.C.f. builds these cars that the wealthy, the thrifty, the young, and the old may ALL well say, "I'm glad I came by train!"



Secluded comfort for mother and children in the Junioroom. A telephone connects with the stewardess who performs many services. The compact vanity transforms to a wash basin. The railing that protects the sleeping child folds under and the crib becomes a double seat, making a private salon for three adults.



Safety is the keynote in vestibule design with swinging hand rails placed across it like a gate, with doors that are mechanically operated, with port-hole windows at several levels which add to safety by providing for both children and adults full vision into the car ahead.



The Slumberliner – a revelation in railroading – provides much more than a comfortable individual coach seat by day – a reclining chair sleeper by night. For it also features streamlined wash room facilities, dual-purpose baggage racks, modern fluorescent lighting scientifically designed to avoid eye strain.



The Stewardette room contains amazing new conveniences—beauty parlor facilities for the ladies—stenographic service for the busy business man—first aid lounge, facilities and restoratives for the traveler who is taken ill—radio and public address systems that broadcast important news to all the passengers.





for milady in the innovation of a semith-up table. For each of three persons it ete with wing mirrors, shelf of towels, ad facial tissues. By merely raising a hid into a commodious wash stand

n of railroad travel with glarescientific nightlighting, better seatrgage storage, sanitary toilet facilis, wider doors, and car arrangeissenger movement. $\Omega \subset \Gamma$ builds y, the thrifty, the young, and the old glad I came by train!



stibule design with swinging hand ate, with doors that are mechanically ndows at several levels which add both children and adults full vision



ns amazing new conveniences ladies—stenographic service for aid lounge, facilities and restoraken ill—radio and public address at news to all the passengers.

Other Methods of Transportation

have new designs on your Customers...

To hold and build traffic,

To hold and build traffic,

a.c.f. presents new
designs for your Customers!

Q.C.f. designs streamliners with all three types of exterior finish—(1) smart, gleaming exterior combined with graceful fluting (2) fluting and the railroad's traditional color (3) all-paint exterior.

Most commented upon perhaps of Q.C.f.'s new car designs is the Slumberliner—the economical, recliner-seat coach with the 100% luxury look and accommodations. Developed by Q.C.f. as a volume travel-builder, it provides a compelling reason to leave the family car at home! Washroom facilities have been completely streamlined—"fixtures" fold into

the wall when desired, providing couch space for extra seating—or, as with the ladies' facilities, wash stands convert to dressing tables by merely lowering a lid.

Flexible in its thinking and wedded to no one metal, wood, plastic or textile, Q.C.f. utilizes the most satisfactory material for the specific railroad service to be performed. Long and close association with the railroads and their needs has encouraged the pioneering of many car-building and traffic-promoting advances today which will become the accepted industry practices of tomorrow.





This OBSERVATION END has horizontal flanges above the windows which are an integral part of the car structure. Besides giving a decorative effect they serve to deflect light and to diffuse it softly into the car. Single vertical fin permits wide visibility.



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Over 50% of the railroad passenger cars now in use are over 25 years old. Many of these cars will be replaced or completely modernized . . . to meet the expectations and requirements of tomorrow's passengers . . . for new travel comfort and convenience. Your passengers will expect new designs, new furnishings, up-to-date electrical equipment—as promised . . . by your railroad . . . by all railroads.

These "blueprints of tomorrow" must include such modernization features as ... air conditioning ... electric water coolers ... improved lighting ... air cleaners ... improved power supply ... and other engineering improvements.

Westinghouse . . . has not only designed new and modern equipment for the passenger car of tomorrow, but . . . has also designed and built the power equipment necessary for their operation.

- The Axle-Driven Generator—with increased margin of capacity will handle the increased use of electrical loads.
- The Motor Alternator—designed and constructed to provide desired power conversion in one package from D-C to A-C... light in weight, no increase in size... producing increased power.

Consult Westinghouse on your plans for passenger car modernization. Ask your Westinghouse office or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

Westinghouse
PLANTS IN 25 CITIES ... O OFFICES EVERYWHERE



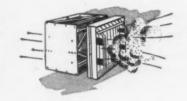
Air Conditioning . . . with Westinghouse Compressor Motor and Control

Strong, light-weight, compact construction of motor and control, assure dependable service.



Westinghouse Water Coolers

Electric water coolers of ample capacity — "tailormade" for railway service.



Air Cleaning . . . with Westinghouse Precipitron

Cleans the air in passenger cars — eliminates 90% of soot, smoke, dirt — permits smoking in every car.



Westinghouse Fluorescent Lighting

Better illumination from efficient new lamps — designed to fit new lighting plans,



- "De-ion" Circuit Breakers

Permit maximum loading of circuits — quick resumption of interrupted service — positive protection.

for over Sixty Years-best known name in

RAILROAD ELECTRICAL EQUIPMENT



Trains for Today ...

Again the railroads are entering a new era... one of intense competition... an era when the most modern and finest cars will be needed.

Over a period of many months Pullman-Standard has presented these designs... designs that are new and distinctive... that are modern and appealing to the traveling public.

With 86 years experience in constructing freight and passenger cars; with extensive research, engineering and production facilities, Pullman-Standard builds sound, safe structures and properly appointed interiors having the elements necessary to attract passenger traffic.

We invite the opportunity to help you develop your passenger car plans and specifications.

PULLMAN-STANDARD CAR MANUFACTURING COMPANY

Day-Nite COACH

The comfort of this coach is achieved by newly conceived seating facilities. Low-angle reclining adjustments with leg rest support the whole body permitting relaxation at full length. Curtains provide privacy.





NEW DESIGNS FOR

... PULLMAN-STANDARD





"Threedex" Coach

Designed particularly for suburban service. The arrangement of seats on the upper and lower decks accommodates all passengers restfully. Individual reading lights and storage space for packages or luggage.

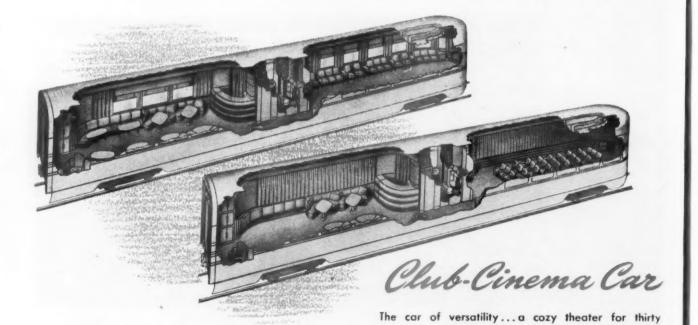
COMFORTABLE TRAVEL

Trains for Today ...

Dining Car

The placing of tables diagonally in alcoves provides smartness and privacy, gives roomy passage and permits swift and efficient service.





"Pullman-Standard has offices in 7 cities —plants in 6 cities.

NEW DESIGNS TO

... a de luxe observation-lounge car.

people...a smart club for dancing and refreshments

PULLMAN-STANDARD



Automatically-operated food bar for self-service ... light repast or a full meal... novel and convenient new seating arrange-

Cafeteria Car

De luxe self service plus a soda fountain. This car, like the Grillroom car, can be used to augment regular diners in the train.



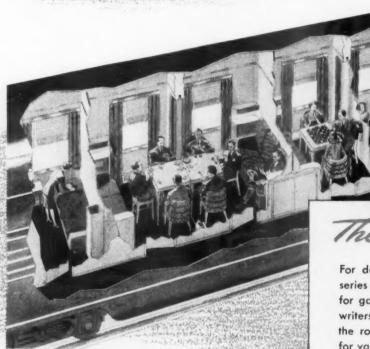
ATTRACT PASSENGERS

Trains for Today ...



Club Car

Caters to the railroads most ardent fans, the youngsters. And makes the travel time of Dad and Mother more enjoyable.



The Casino Car

For daytime trips...a car with a series of private and luxurious rooms for games or use by business men, writers, etc. Sliding panels permit the rooms to be made adaptable for vaious sized groups.

86 years of the Railroads

NEW DESIGNS FOR

.. by PULLMAN-STANDARD



Practically a sumptuous apartment on wheels. Successor to the parlor car. Spacious and informal in arrangement. It is the last word in comfort.





Duplex-Roomette

A low-cost accommodation . . . a private room for one person—bed lengthwise of car. Completely equipped with toilet facilities and control for heat, light and air conditioning. Bed can be lowered for sleeping without calling porter.

PROFITABLE OPERATION

Trains for Today ...



Three-Tier Sleeper

For the limited budget. 42 berths per car, each full length and curtained for privacy. Wash basin, dental faucet and electric razor outlet in each section.

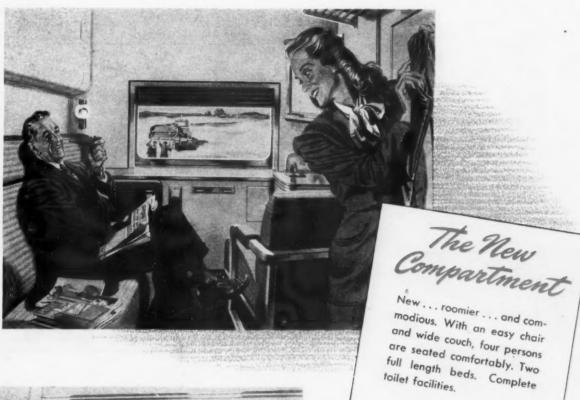
The New Bedroom

Moderate cost room luxury. Ideal for daytime lounging; two full-length beds. Complete toilet facilities.

"Pullman-Standard
. . . world's largest
builders of modern
streamlined railroad cars."

NEW DESIGNS TO

.. Ju PULLMAN-STANDARD





The Drawing Room

For De Luxe travel. Three persons may sleep comfortably in full-size beds. By day it is a spacious living room, with broad couch and two easy chairs. Private wash room adjoining.

MEET COMPETITION

WOVENSTONE

THE PROVEN

Operating tests prove that INSUTAPE eliminates 64% of bare pipe heat losses. Savings have been proved under still air conditions, but are much greater under wind velocity conditions found in the actual operation of rolling stock.

WOVENSTONE has proved its efficiency in 12 years of "active service." Many mechanical nen can point with pride to rolling stock that is still equipped with its original Wovenstone—rolling stock placed in service over 12 years ago!

MEANS PROGRESS IN INSULATION
AND RUBBER CO.

310 S. MICHIGAN AVENUE CH

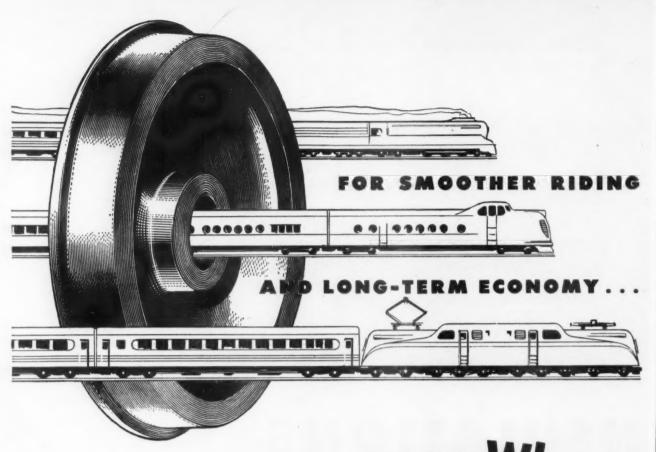
INSUTAPE and WOVENSTONE save fuel and eliminate maintenance problems. Their high insulating efficiency means greater passenger comfort, too. Unarco steam-pipe insulations prevent pipes from freezing—keep steam coursing through the train at peak-efficiency; will not shake down—always remain snug and firm against the pipe—can be reapplied over and over again.

INSULATIONS

INSUTAPE

MEANS PROGRESS IN INSULATION
AND RUBBER CO.

ECHICAGO 4, ILLINOIS



Bethlehem Passenger Wheels

The passenger cars now being planned will create a new milestone in railroad history.

As the traveler glides along smoothly at 80, 90, 100 miles an hour, he will be conscious of styling, beauty, and smooth riding—smoothness due in part to the wrought-steel wheels of the car. As in the past, great numbers of these wheels for passenger service will be furnished by Bethlehem.

There are many solid reasons for this, some of them far beyond the realm of comfort. One of these reasons is the fact that a Bethlehem wrought-steel wheel means long-range economy. No small part of this is due to the Bethlehem heat-treating method, which contributes heavily to toughness and wear-resistance.

Sturdiness and long life are all direct results of the Bethlehem forging, rolling, and heat-treating processes. These built-in characteristics of Bethlehem Wrought-Steel Wheels mean fewer replacements... lower maintenance...lower overhead.

You get the same kind of ruggedness, too, in Bethlehem forged-steel axles. That's a good point to remember when framing your operating budget.



No



The traveling public has long been familiar with
the soft texture of Massachusetts Mohair. Railroad men have long been aware of the fact that
this texture is their assurance of long years of
attractive service. That is why Massachusetts
Mohair is said to supply the finishing touch to
coach and car seating. It affords longer service
between shoppings and its lasting beauty keeps
appearances up!



MASSACHUSETTS MOHAIR PLUSH CO.

BOSTON, MASS.: 80 FEDERAL ST. . NEW YORK CITY: 2 PARK AVE. . PHILADELPHIA, PA.: BEURY BLDG. CHICAGO, ILL.: 80 E. JACKSON BLVD.

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SAFETY FIRSTS

For 60 years, our products have constituted a complete line of apparatus for lighting railway cars, representing the pioneer development and best practice in that art and providing equipment to serve in most advanced design of transportation facilities.

We also pioneered in the development of air conditioning for railway service and our various types of equipment represent the best in performance and economy of operation.

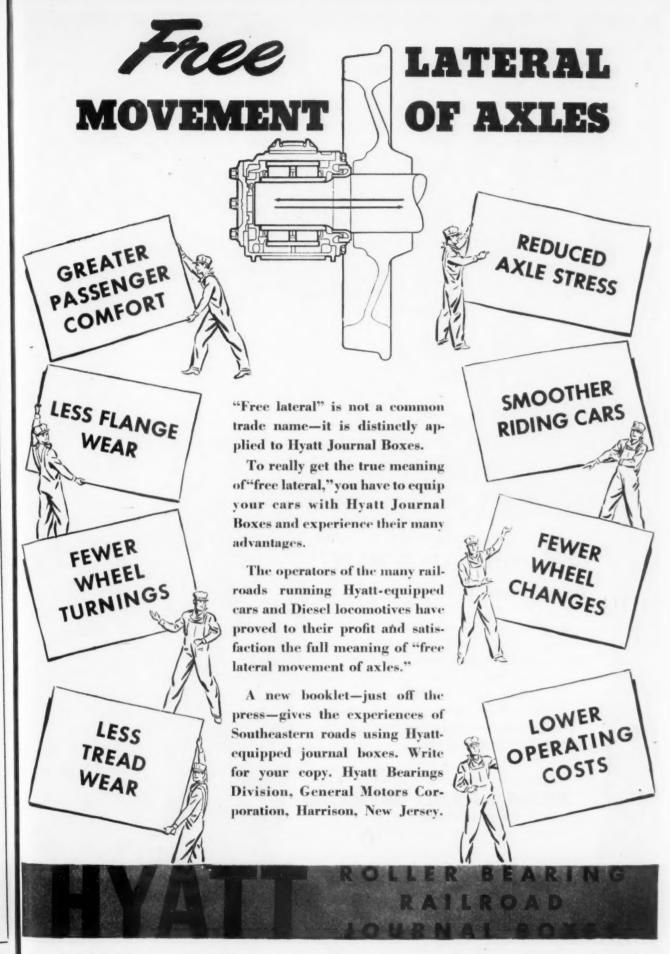
For the cars that will be built in future, we will furnish these products with the same satisfaction to our customers as in the past.

The lighting and air conditioning equipment for your new car building program will best be supplied by us ... we're experts.

THE SAFETY CAR HEATING AND LIGHTING COMPANY, Inc.

New York, Chicago, Philadelphia, St. Louis

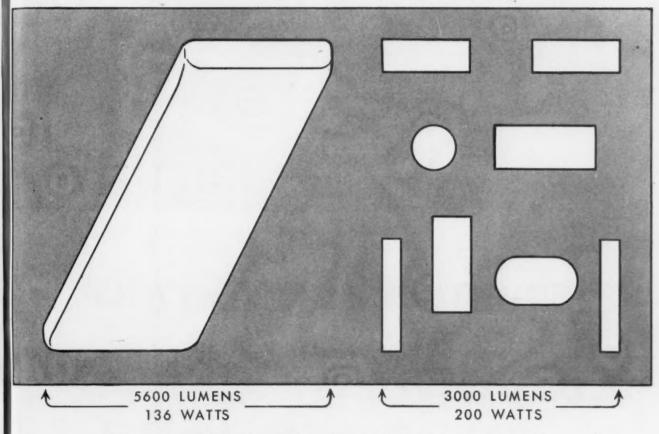
Boston, San Francisco, Montreal





Conditioned Lighting

ONE LARGE, GENEROUS SOURCE OF LIGHT.
A SOFT PLEASING GLOW.
AN ABUNDANCE OF LUMENS.
UNOBTRUSIVE BECAUSE IT IS LARGE.
REPLACES MANY SMALL LIGHTING FIXTURES.



FOR TIRELESS READING—Ample diffused illumination where you want it.

WHEN IN FRONT OF A MIRROR—Illumination on your face
—not a glare in your eyes—for facial make-up or shaving.

IF MORE LIGHT IS DESIRED, JUST ADD MORE LAMPS TO THIS UNIT INSTEAD OF BUYING MORE FIXTURES, MORE METAL, MORE WEIGHT, MORE WIRING AND MORE COSTLY MAINTENANCE.

YOU CAN NOW GET THESE LARGE FIXTURES BECAUSE—

They require large, light weight transmitting shades now available in "Safety 68" plastic.

They require long lamps now available in fluorescent. They must have quick easy access to lamps—

a Safety Company feature.

THE SAFETY CAR HEATING AND LIGHTING COMPANY, INC.

New York, Chicago, Philadelphia, St. Louis, Boston, San Francisco, Montreal

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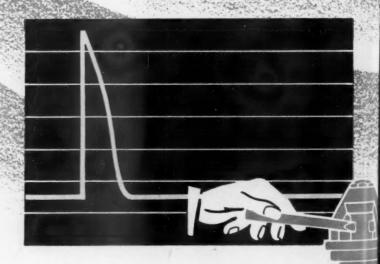
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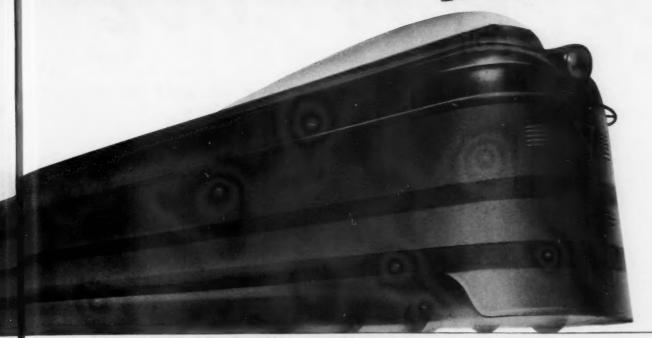
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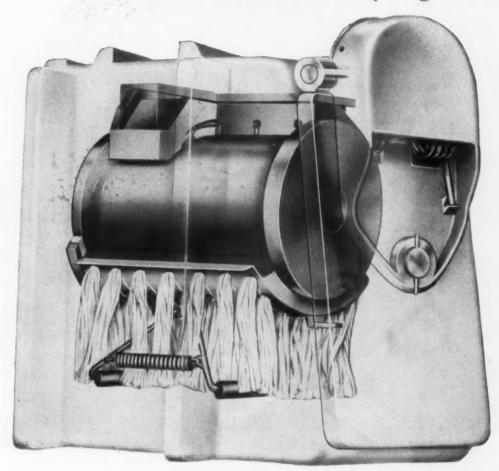
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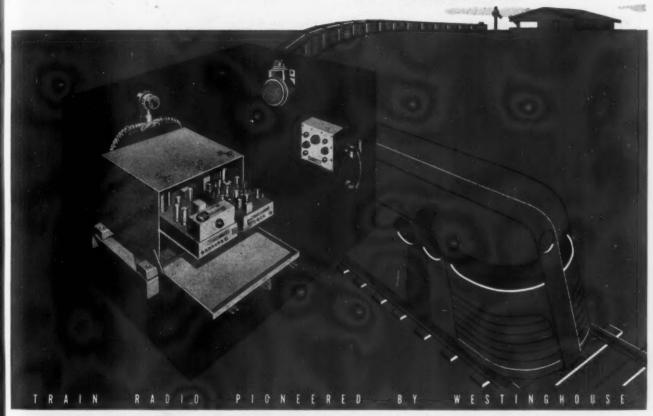
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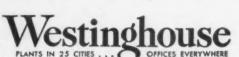
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Railway Age

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Vol. 119

November 17, 1945

No. 20

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Passenger Progress at a Glance

PREVIEW IN COLOR: What some of the trains now in the works for delivery during the next twelve months are going to look like, inside and out, is disclosed in pictures and text in an article beginning on page 781. The article also records the policies as to passenger service improvements by a number of individual railways; the results of polls taken to disclose passengers' preferences; and a weighing of the danger from air competition.

NEW TRAINS ON ORDER: More than 1,200 new streamlined cars are now on actual order—representing an expenditure of over \$100,000,000. Beginning on page 824 an article tabulates each of the passenger-car orders now on the builders' books—and reports, railroad by railroad, just how these railroads are going to use these new cars and new trains to improve their service.

CAN IT BE MADE TO PAY? An editorial discusses the likelihood that passenger service can be made to yield a profit. Pre-war experience showed a disastrous loss for a whole decade-but pre-war experience also showed that modern trains operated in areas of potentially heavy traffic were well-filled, and all experience shows that well-filled trains on reasonably long hauls are profitable. The problem of making passenger service profitable thus resolves itself into one of running the kind of trains which will get the profitable business, where there is such business to be had, and of pulling off service which cannot be operated profitably. It would be a pity if the records of these fine new trains should be lost in a lot of red ink poured upon them by com-muter service and "accommodations" patronized scarcely at all, except perhaps by deadheads.

WHAT NEW CARS ARE LIKE: The newer cars already in use are but a pale shadow of the convenience and comfort still to come-as the evidence revealed on page 795 herein on the characteristics of the new jobs now in the making will show. More comfortable seats; a greater variety of improved sleeping accommodations, including those which can be offered at reduced prices; completely redesigned dining cars; increased convenience in sanitation-such are some of the things right around the corner. They aren't just promises either, but are actually in the works. Most spectacular of all, your reporter ventures to guess, is this "vista-dome" which will make every car to which it is applied a caboose. It is about time that cash customers were introduced to this most attractive refinement of railroad travel, so long a well-kept secret of the freight service.

POWER CHANGE GRADUAL: Aside from some experimental steam and gas turbine installations, the dominant locomotive of the immediate future is already on view, in the most advanced designs of Diesel and steam power now in service. Such, anyhow, is the considered opinion of our mechanical department staff, set forth on page 802. The characteristics and per-

formance of outstanding examples of these successful new designs are given—records which indicate why the railroads can give a pretty good account of themselves from the power angle without having to await revolutionary wizardry, which of course is by no means precluded.

SMOOTHER TRACK: Faster trains, with accompanying comfort to customers, are just as much a problem to the roadway people as they are to the mechanical department; and every program for accelerated service means work to do in every aspect of track construction and maintenance. An article beginning on page 812 surveys the manifold aspects of this problem-which lies in the field of economics as well as engineering, because the question inevitably arises as to how much a railroad can afford to spend for improvements which yield easier-riding track, and no other advantages. The task of distributing an amount of money necessarily limited (since we are talking about railroads and not highways or airports, which are paid for by the taxpayers), in a manner to produce the maximum in appeal to customers, is one calling for a lot of wisdom.

THE OLD DEPOT MUST GO: Whatever nostalgic yearnings some railroad "fans" may have for the old "deepo," with its Swiss-chalet scroll-work, its drafty ceilings, its dim lighting and its fly-speckled walls-experience indicates that the modern mass-traveler is looking for something different. An article on page 817 suggests, by pictures and text, what this new something is. The spending of a lot of money for monumental edifices isn't what is needed, but neat structures, no larger than traffic requires, and arranged to maximize convenience. Neither is exotic "streamlining" required-the use of native materials to tie the structure in with its surroundings is preferable and excessive standardization is undesirable.*

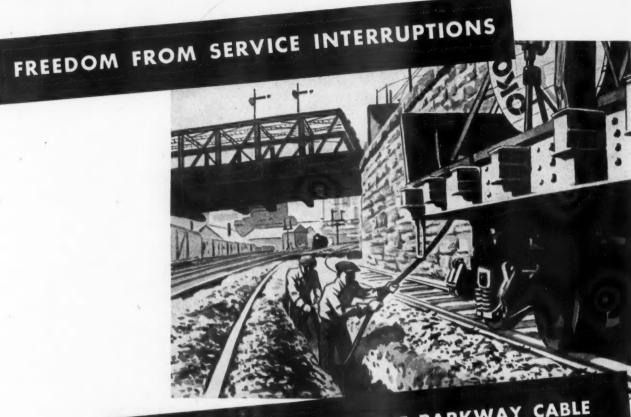
COMMUNICATION & SIGNALS: Trains can go faster with an increase rather than a decrease in safety, thanks to the extension and improvement in signaling installations and to the spectacular progress of recent years in the perfection of new devices to facilitate communication. These important factors in improved passenger service are surveyed in an article on page

WAR JOB NOT COMPLETE: From the beginning of October, 1945, until June 30, 1946, the railroads will have to transport 61/4 million service men in organized inbound movements from Pacific and Atlantic ports, with the peak of the movement in prospect for December. There will be another million of outbound movements during the same period-plus plenty more shifts within the country. The whole wartime experience in the movement of service personnel by rail is surveyed in an article beginning on page 789. Methods employed in arranging schedules for these movements are described, as are the operations of the Army Reservation Bureau.

COURTESY AND TACT: The railroads during the past year slipped rather badly in public acceptance of the treatment meted out to patrons by employees. In an opinion survey made in July for the A.A.R. 14 per cent of persons who had traveled recently were critical of the way railroad employees had dealt with them. Last year the percentage of complainants was only 10. In 1943 it was 9. In 1942 it was 8, Systematic effort by the railroads to persuade employees to try to deal more skilfully with patrons, and to show them how, made rapid strides during the past year-as is evidenced by a report on page 805. It is plain, however, that this effort is still quite spotty; even the roads which are doing a lot have not yet reached all their employees; and many roads have no special programs at all for correcting this unwholesome situation. The persistence of railroads which are laggard in this respect injures, not them alone, but the whole industry—because most people don't distinguish sharply between railroads. The whole industry is likely to be blamed for instances of boorish or stupid behavior at the hands of only a minor fraction of the employees of a minority of the railroads. To make the program effective every railroader must be his brother's keeper.

PULLMAN DISPOSAL: On November 13 Pullman made known to the Philadelphia court which is requiring and overseeing the divorce of its manufacturing and sleeping car operations that it has accepted the offer of 27 leading railroads to purchase its sleeping car business. There are three other bidders for the property and it is anybody's guess what the court may decide as to Pullman's selection among them. The railroads point out, however, that possession of sleeping cars won't do their owners much good unless they have operating contracts with the railroads. An article on page 831 reviews this complete case-all the way from the initiation of the suit in 1940 by Thurman Arnold, then assistant attorney general, to the reappearance of the said Arnold in the case as counsel for one of the groups bidding for the property; along with the rapid developments of the past week.

PASSES NOT REQUIRED: Free transportation for people who work on the railroads is a privilege and not a right. The Interstate Commerce Commission has made that point clear in dealing with a complaint by the dining car employees' union which alleged that the Santa Fe was not issuing free passes to Fred Harvey employees on the road's dining cars as freely as they are granted to "other employees. In dismissing the complaint, the I. C. C. says the law lays no express or implied duty on a railroad to grant free passes to employees, but merely allows the carrier that privilege. Consequently, no power rests with the I. C. C. to apply the "undue preference" provisions of the law to a carrier's exercise of its privileges to issue passes. Employees who receive any passes at all are fortunate, with no grounds for complaint if others are deemed worthy of more generous favors of this kind.



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RAILWAY AGE

Passenger Progress Coming Again

Experience during World War II had an inspiring effect on the railways which will greatly help them in solving their post-war problem. Never in their long history were they put to such severe tests. Never was it so important to them and the nation that they should meet the tests to which they were put. Never were they put to tests that they met so well. And never did they win so much government and public understanding and approval. A survey of opinion made in 1941 disclosed that only about one-half the people considered the railways prepared to do a good job in case of war and that about one-half believed that in the event of war government operation should be adopted. A survey made at about the war's end showed that 89 per cent of the people believed the railways had done a good job and that less than one-fourth leaned toward government operation.

The railways not only did a magnificent war-time job; they publicized as never before what they were doing, how they were doing it and what they were trying to do. They owe the public's present favorable opinion of them to both causes.

The struggle to rehabilitate and improve facilities, meet competition and make adequate net earnings under peace-time political and economic conditions has now begun. There is much uncertainty about what these peace-time conditions will be. The railways are not waiting to find out. They are starting to help make good peace-time conditions with a spirit largely inspired by their war-time success in year after year achieving the seemingly impossible.

The railways lost most of their passenger business to competitors by highway and air during the two decades of, first, prosperity, and then depression between World Wars I and II. In most of the decade ending with 1929, when they made large expenditures for improvements, they concerned themselves principally with providing means of rendering more and better freight service. Little was done to arrest the increasing loss of passenger traffic to carriers by air and highway, especially the latter.

The renaissance of railway passenger service began at the bottom of the depression. First, air-conditioning was introduced, and spread rapidly in spite of its comparatively high cost. Next came two lightweight streamline articulated trains intended primarily for daylight competition with buses, one of them equipped with a Diesel locomotive. There rapidly followed lightweight, streamline and increasingly comfortable and luxurious trains for long distance service, some consisting of coaches, some of sleeping cars, some of both. New kinds of rooms in addition to the familiar drawing room and compartment began replacing the upper and lower berth. With improved and new types of locomotives, speeds were widely scheduled and maintained surpassing any previously known in this or any other country; and to make these speeds comfortable and safe extensive changes and improvements in tracks were undertaken.

The war arrested this progress in passenger service. It will be resumed on a much larger scale—as is shown by large orders for new types of passenger equipment already placed—as soon as current huge movements of returning troops are finished.

It is impossible on many railways to make passenger service pay, and difficult on most railways. But passenger service has to be rend-

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ered even where the available traffic is small. Most of the cost of rendering the service has to be incurred whether it is rendered well or badly. Good passenger service is the best form of advertising and public relations activity that a railway can carry on. Hence, the argument for making all the effort and incurring all the expense necessary to making whatever amount of passenger service may be rendered just as good as practicable is conclusive.

This most railways evidently intend to do; and their competitors will not find it as easy to take passenger traffic from them in the post-war period as it was in the pre-depression period.

Can Passenger Service Be Made to Yield a Profit?

The predominant railroad attitude towards passenger service recognizes that, when such service is attractive, the company offering it gains so much in popular favor, both politically and in freight traffic promotion, that its passenger operations can often be economically justified even when they do not produce black-ink figures in the mome account. This opinion, however, runs into difficulty on those railroads where passenger traffic bulks large in total revenues. A red-ink operating ratio for passenger service is a matter of limited importance to a carrier deriving only 5 per cent of its total revenues from passenger traffic, but a similar red-ink ratio is a far more serious matter to a railroad with 15 or 20 per cent of its gross revenues coming from passenger transportation.

The operating ratios for passenger service reported by the Interstate Commerce Commission do not, of course, afford conclusive evidence as to the profit or loss in passenger service, because they include arbitrarily assigned ratios of expenses common to both freight and passenger service, which expenses the railroads could not avoid even if passenger service were abolished; and they do not allocate any of the cost of operating passenger trains to advertising or public relations expense-which, within reasonable limits, it might be proper to do. The I. C. C. ratios are, nevertheless, an accurate measure of the relative profitability of passenger service, comparing one year with another. Furthermore, when these ratios run well above 100-as they did for the railroads as a whole throughout the 'Thirtiesthey argue strongly for the conclusion that passenger service is actually unprofitable, in spite of all that may be said about the public relations value of the service or of questions raised as to the assignment of expenses shared in common with freight traffic.

If the railroads as a whole could not hope in future to produce any better passenger service operating ratios than the figures running upwards of 120 per cent which prevailed from 1933 through 1940, then the quicker most of them should retire entirely from passenger operations, the better it would be for the industry and for the country. It is better to prune away dead limbs promptly, even at the expense of a tree's symmetry, than to risk the loss of the whole tree in their retention.

Experience during the war has demonstrated, however, that passenger service can be very profitable indeed where substantial trainloads are available. Such loads will be harder to get as competing forms of transportation once again come into full operation. On the other hand, it should never be overlooked that one of the great handicaps which the railroads suffer, as compared with competing agencies of transportation, in keeping their over-all operations in the black, is their continuance of unremunerative services. With alternative means of transportation so plentiful, there is today no more reason why the railroads should be expected to operate "red ink" trains than there is for forcing bus or plane operators to operate unremunerative schedules—which, of course, they practically never do.

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There is hardly any question that comfortable, modern trains, operated at reasonable rates where potential travel volume is heavy, will attract sufficient patronage to yield a profit. There is considerable question whether railroad passenger service as a whole can be made profitable with the revival of competition-even with the aid of such remunerative trains-if regulatory authority, or the pressure of public opinion, or simple inertia continue to burden the railroads with as many trains that do not pay their way as they were operating before the war. Commutation service, which in some if not most places where it is provided is hopelessly moribund as an earner of net revenues, is one of the situations which the railroads and public authorities will have to face more courageously and realistically in future than in the past if the economic victories of modern and attractive passenger service are not going to be drowned in a flood of red ink from other branches of the passenger service.

A successful merchant is one who is alert, not only to provide his customers with attractive new lines of merchandise, but one who also manages to keep his shelves clear of goods which are no longer in sufficient demand to justify their retention.

Streamliners Alone Will Not Do the Job

While the attention of the railroads is so definitely focused on colorful, high-speed, streamlined trains as their answer to the challenge of competition, it would be a mistake for them to overlook corollary improvements essential to improved passenger service-improvements in their fixed properties, without which their answer to the challenge facing them might prove too weak. Especially important are improvements in the very foundation of all train service—the tracks and in what have frequently been termed the "gateways" to the trains—the passenger stations. So important is it that these matters assume their proper perspective in the thinking and plans of the railways for effective passenger progress, that both of them are discussed in some detail in separate articles in this issue, which is given over to articles about passenger train power and equipment, the record of railway passenger service during the war, and a wide range of factors bearing on passenger service and prospects.

It would be fine if streamlined trains, by themselves, could provide the answer to the future passenger service problems of the railways—if no consideration had

to be given to such matters as adequate tracks and passenger stations; but that is no more possible than to operate air lines without airports and terminal facilities, or buses without highways. Unfortunately, in contrast with the air lines and bus lines, the railways must from their own "regulated" earnings pay the full cost of their fixed facilities and keep them adequate to service demands.

The important thing is that the railroads recognize the need for all of those improvements, whatever their character, that are essential to the end in view, and that they find ways and means of providing these improvements, and at the lowest cost consistent with service requirements and economical maintenance.

The situation is one which calls for imaginative thinking by managements as to the character and extent of the improvements and for equally broad-gage thinking by those responsible for putting the improvements into effect. Neither should be rushed or rash in their plans and action, but there is no time for useless delay nor occasion for undue tenderness for precedents which have outlived their usefulness.

"Blue Sky" Salesmanship

Back in 1937 a railway president, new to the line he was heading, made a tour of his off-line traffic agencies. He was appalled to discover that 90 per cent of his offline traffic representatives had never seen the railway they represented and, because of their ignorance of its services, were really selling "blue sky." Although the finances of his railway were not at that time any too healthy, this president believed that the expenditure of the money necessary to acquaint the traffic solicitors with what they were selling was amply justified, and the intervening years with the mounting revenues and improved financial condition of his railroad have proved that he was right. Until the war the traffic representatives of this line made an inspection trip over the railway at least once every two years, enabling them to give sales talks with informative backgrounds.

While a certain percentage of the off-line representatives on each railroad have had general office experience or have worked at on-line traffic agencies, there are far too many of them who were either never intimately acquainted with the railway whose service they are selling or who have lost touch with the details. To overcome this handicap the Denver & Rio Grande Western, for example, has arranged for its off-line traffic agents from 21 cities scattered throughout the country to attend a special post-war planning conference at the Denver headquarters. In addition, these representatives will be taken over the railroad to familiarize them with local conditions and the trip will include ceremonies attending the opening of a new tunnel at Tennessee Pass. When these men return to their various headquarters they will be much better salesmen because they will have had an opportunity to see the "product" which they are selling.

All of the railways plan to improve their sales efforts to meet the renewed competition they will face from now on. One of the important factors in accomplishing this end is, by some means or another, to acquaint off-line traffic solicitors with what they are selling.

Sleep, Soldier, Sleep!

In the United States today there are 172,775 rolling beds on the railways, of which 114,831 are assigned exclusively to military use. This includes those in standard Pullman cars as well as in the specially designed troop sleepers. In addition, military personnel in individual movements occupy a large percentage also of the beds that are not specifically assigned to troop movement. The reason why there have not been more ambulatory beds for the use of soldiers and sailors is that, except for sporadic quantities of troop sleepers, the Pullman Company and the railways were prohibited from acquiring more sleeping cars during the war.

Now that this government restriction on buying and building cars has been lifted, the railways have placed with the car builders sizable orders for new lightweight sleeping cars, but these will not be ready in time to handle the peak troop movement which, according to advice from military sources, is to be expected in December. Even after the government restriction is no longer effective, the labor unions of the country have applied their own restrictions on the building of sleeping cars for troop movement, and the fact that the labor restrictions are unofficial does not alter their effectiveness in preventing increase in the number of beds available.

Some months ago an order was placed with the Pullman-Standard Car Manufacturing Company for 1,200 troop sleepers, of which 350 were scheduled for delivery in October, 1945. The entire order was supposed to be completed by December 31, and according to the Transportation Corps of the U. S. Army it was essential that these cars be delivered by that time. So far only 40 of these cars are in service. The reason is that the Pullman-Standard Car Manufacturing Company had strikes which delayed the building of the cars; and since these strikes were ended the cars have been held up awaiting beds overdue from the Simmons Company, against which a strike recently has been in progress.

These beds would have supplied comfort to thousands of returning service men. And the strikers are directly responsible for the necessity of large numbers of service men sitting up in coaches all night who might otherwise have been comfortably bedded down. These strikes have occurred when the railways have been facing a troop movement expected to rise to a monthly peak of 980,000 men in December, and with the prospect of handling 3,540,000 more service men as passengers in the first six months of 1946.

Aspects of Physical Progress

Passenger progress in the years of peace to which we now look forward means many things to many people. To some of the public it means the prospective thrill of the vastly increased speeds of air transport; to others it means a return of inexpensive highway transportation. Others expect to enjoy their own private transportation on the highways. To a great middle group of Americans it means the prospect of new standards of comfort and attractiveness in rail travel at the higher

range of passenger-train speeds, well started on its way during the years immediately prior to the war. To the railroad man it means all the changes in facilities, both rolling and fixed, which are involved in producing the advanced standards of service expected by the public, and those changes designed to produce improvements in the railroads' own operation.

To a very large degree the improved service, so far as it involves rolling stock, is not going to depend upon the disclosure of new secrets either of materials or design. It will be founded upon the employment of those materials by which marked weight reductions were being achieved when our participation in World War II put a stop to the progress then well under way. These materials are the low-alloy high-strength steels, stainless steel, and the strong aluminum alloys. With these materials weight reductions in railway passenger cars ranging from 10 tons to 35 tons have been effected, depending upon whether the comparison is made with the most weight-efficient designs or with the more typical designs of the carbon-steel era. These weight reductions have been achieved largely by lightening body structures by which as much as 18 tons have been eliminated. Trucks have contributed, largely by the employment of the four-wheel in place of the six-wheel type, and in some cases by utilizing the high strength of alloysteel castings, with reductions of six to seven tons. Air conditioning has increased weight by four to five tons. The net results are significant when it comes to the consideration of motive power for the generally increased speeds anticipated in the new peacetime era.

The kind of motive power with which the new faster schedules are going to be made is already in service. Diesel-electric locomotives have now been handling main-line fast passenger runs long enough to have established fully their suitability for this kind of service in any capacity required. Performance may now be predicted with some confidence.

Advancements and refinements in the design of steam locomotives have produced motive power not only adapted to the operation of passenger trains at high speed but with additional capacity capable of moving even longer trains of conventional heavy cars at top speeds much higher than the still prevalent general standard. Running today are a number of types of reciprocating steam locomotives designed specifically for the new standards of passenger service.

The fact that passenger progress during the years immediately ahead is not going to depend upon the disclosure of new secrets does not warrant the conclusion that new secrets are not going to be disclosed. The dim outline of some of them has already begun to appear. A direct-connected steam-turbine locomotive has already been in operation for many thousands of miles. Indeed, it is rapidly approaching the time when judgment may be pronounced on the adequacy of the new features in this design to meet the severe requirements of locomotive operation. Other types of locomotives in which the steam turbine is to be incorporated as the prime mover are already projected. The gas turbine, using more than one kind of fuel and not omitting coal, will eventually have its try. So much for the "new" developments already beginning to take shape. That others now unknown and perhaps even uninvented will not appear in due course is inconceivable.

What the Passenger Wants

In the course of a survey made by the Railway Age in 1943, the executives of all of the principal passengercarrying railways were interviewed and asked to express their thoughts with regard to post-war passenger traffic and service. There was a striking unanimity in the intentions expressed; and that the executives were not kidding themselves or the interviewers is shown by the fact that they have done what they said they would do. They said they would purchase new, comfortable, and even luxurious, equipment for the post-war traveler; and in the few months since the termination of the war there have been placed orders for well over a thousand new passenger cars. The executives promised that schedules would be made faster and fares lower, and moves are already well

under way to bring about these results.

The executives stated that greater emphasis would be placed on what the passenger wants. To discover this, the Passenger Division of the Traffic Sub-Committee of the Research Section of the Association of American Railroads has been engaged for over a year in investigating and preparing a report which will cover all phases of passenger service. Meanwhile, a number of the railways have been conducting individual studies of considerable scope to find out what the passenger wants, in the course of which, on various railways, more than 30,000 passengers have been interviewed and their wishes reported. The wants and needs of women passengers have been given thorough consideration, and this is as it should be, as it is frequently the woman of the house who decides whether the family will make pleasure trips by automobile or train. Due attention has been given to the first-class passenger, and the coach passenger has been given an unusual opportunity to express his views, for it is from mass transportation in coaches that the railways derive most of their passenger revenues.

The stake being played for is large. Experience after the first world war indicated that men in military service develop an "itching foot," and the numbers of men and women involved in World War II were so much greater than in the previous war that the future travel market will be many times as great. Garth Cate, travel director of the Scripps-Howard publications, makes the startling prediction that American recreational travel expenditure will reach the astronomical total of 12 billion dollars annually within five years after the end of the war with Japan! Add the normal volume of business travel, and it becomes apparent that the railways are well advised in making plans to capture as many of these travel dollars as possible.

While not unmindful of the competition with which they will be faced, railway executives are optimistic that the plans now in the making for improving railway equipment and service will attract a large percentage of the potential travelers. In addition to subsidies, competitors of the railways have some other advantages, but it is equally true that railway passenger trains, with service properly priced, with fast, frequent and convenient schedules, and with their superior safety have a list of attractions not possessed by any of their competitors.

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Color, New Design, Comfort and Speed Characterize the New Astra-Liner to Be Built for the Electro-Motive Division of General Motors

Where Do We Go from Here?

Railways and car-builders, through advance planning, have attractive accommodations on the way for the post-war traveler

OLOR, luxury, speed and low price will feature railway passenger service of the immediate future. The revolutionary suggestions as to color and luxury in passenger cars as conceived in the engineering departments of the car-builders are shown in the colored illustrations which accompany this article. Included also are colored views of the Astra-Liner, a train now under construction by the car-builders on order from the Electro-Motive division of General Motors. When completed, this colorful and revolutionary train will be taken on a tour of the country by its owners, in order that its eye-filling appeal may aid in stimulating railway passenger traffic. The startling mechanical details of these and other trains and cars are treated extensively in another article in this issue.

The plans of the railways themselves are equally colorful, in the figurative rather than the literal sense. Reductions in passenger fares are planned. Schedule shortening is in the making on a large scale, as soon as the streamlined equipment and fast passenger locomotives now on order are delivered. One of the most interesting proposals is the operation of through transcontinental streamliners between New York and California. This plan is well beyond the merely speculative stage. Tentative schedules for week-end "sailings" with Friday evening departure and Monday morning arrival have already been made. The proposed trains would be of the luxury type, with all-room accommodations, but a coach streamliner on such a run is also being discussed.

These plans for passenger service

improvements are not based merely on what some railway officer thinks the passenger ought to take and like it. On the contrary, there has never been a time when so much study has been given by the railways as to what the passenger wants. The results of such studies are given later in this article.

Prophets with Honor

In 1943 a survey was made by the Railway Age among the executives of the leading passenger-carrying lines, and the results were published in the Passenger Progress Annual dated November 20, 1943, page 794. In view of what has happened since and what is happening right now, the five salient points developed in that survey show a remarkable degree of accurate prophecy.

The factors on which the railway presidents interviewed were practically unanimous were as follows:

1. The railways are determined to fight with every weapon at their command to hold as large a share as possible of the post-war passenger traffic. Without minimizing in any way the seriousness of the competition they will face,

The Exterior and Interior of the Astra-Liner Present Radical Departures from "Standard" Designs

the railways are optimistic as to their chances of success.

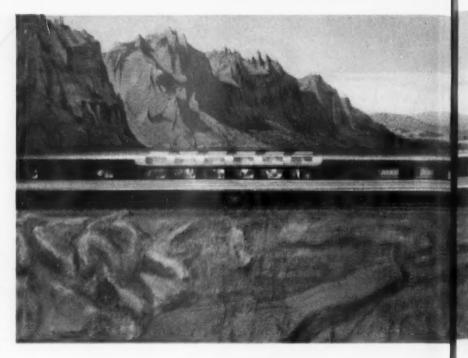
2. The railways recognize that most of their present passenger equipment is out-moded and are planning to replace it with modern light-weight equipment just as soon as possible after the war. Numerous roads plan to buy up to the limit of their financial ability.

3. A majority of the railroads favor a reduction in passenger fares after the war

4. Many railways plan to augment their fleets of coach streamliners materially to add the appeal of frequency of service to the existing advantages of comfort and speed as compared with highway competition.

5. Nearly all of the railways have made elaborate studies and formulated plans for holding passenger business, and the end of the war will not find them unprepared. In some cases, these plans include participation in air transport, if permitted.

That these railway presidents knew what they were talking about is indicated in the developments since V-J day. At that time there were on the carbuilders' books a smattering of "phantom" orders for passenger cars. Another article in this issue lists the pres-



ent orders, which amount to well over a thousand cars and new orders have been reported almost daily since August.

Alert Competition

While the majority opinion among railway executives presents a distinct tinge of optimism, there is no inclination to minimize the prospective travel competition. Intormed officers feel, though, that the potential travel market is greater than ever before and that, because of the intensive efforts being made to find out what the passenger wants and give it to him quickly, the railways are in position to retain much of their present passenger traffic volume.

They will have an unprecedented opportunity to display their wares attractively in the next 18 months. A survey made by a large tire manufacturing company and other estimates from authoritative sources within the auto industry indicate that the reconversion of the automobile industry will not be as rapid as was previously estimated. The present prospects are that it will be well along in 1947 before automobiles are again available in large numbers to the civilians. Meanwhile, obsolescence, and consequent elimination of automobiles from service at a rate now well over 1,000 cars per day are increasing.

Next summer's vacation season will find millions of returned veterans eager to travel with their families. Only a small percentage of the existing private automobiles will be in condition for long distance touring. Therefore, the railways will have first call on this large travel market. The Milwaukee has already issued an attractive bookelt entitled "Veterans' Victory Vacations" as a part of its appeal to these prospective travelers.

The airplane carriers are, as usual, issuing extravagant claims and appeals for further subsidization. By promises of making Podunk or Farmerville the "air capital of the nation," they are urging municipalities (successfully, too, in most cases) to expend large sums for air terminals. In the Saturday Evening Post of October 20, C. R. Smith of American Airlines demands subsidies that will permit airplane fares to be reduced to three cents per mile. As a for-mer major general, Mr. Smith must be familiar with the vast changes the atomic bomb discovery will make in future military air fleets, but he blithely ignores this and states that "4,500 transport planes should be on tap." These, of course, are to be handed over to civil air lines for commercial operation until



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Railway Age-November 17, 19-5

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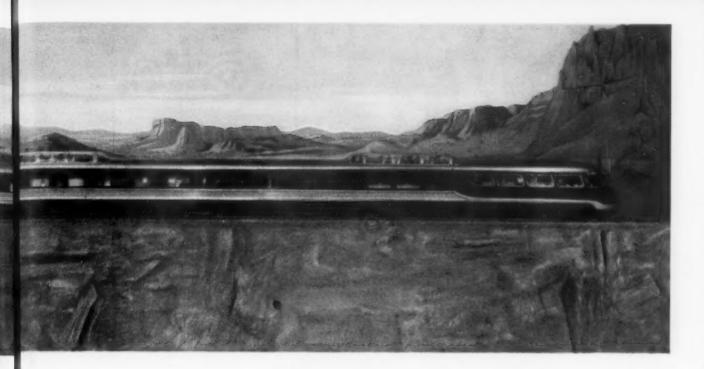
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such time as another war comes along. This type of muddled thinking cannot be dismissed lightly, as its very volume has convinced many unthinking people that the air lines should be subsidized in every possible way.

In contrast with such "scarehead" publicity, an aviation forum was held recently under the auspices of the University of Chicago and the Chicago Association of Commerce. This was participated in by the saner and more conservative minds of the air transportation industry. A study of their comments indicates that visions of "a sky full of planes" are so much poppycock, but also shows that, despite the relatively small number of planes to be in commercial operation in the near future, they will be concentrated on the most profitable routes, thus making inroads into the railways' passenger traffic volume out of proportion to the number and capacity of the planes.

The air lines have stressed service and courtesy and the individual attention given each passenger has been one of their major selling points. Two factors enter the post-war picture to reduce this advantage previously enjoyed. As air travel increases, such individual attention will be difficult to maintain. Also, labor unions are clamoring for recognition by the air lines and if labor difficulties crop up, the history of other industries, including the railways, indicates that present standards of courtesy will decline.

What the Passenger Wants

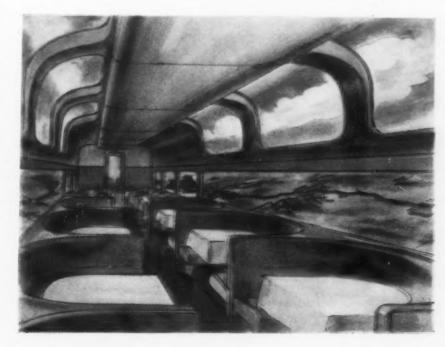
What the passenger wants has been made the subject of thorough study by several of the railways. In the matter of fares, it is felt that lower cost travel is essential to meeting competition. Present fares for plane travel have been re-

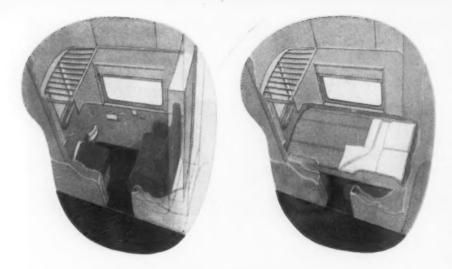
duced to about 4½ cents per mile, as compared with present basic rail rates of 3.3 cents per mile, first class; tourist-class fares of 2.475 cents per mile on certain western railways; and coach fares of 2.2 cents per mile. The 15 per cent tax on transportation tickets supplies a slight added differential in favor of rail tickets, but the margin, when Pullman fares are added to first-class fares, is too close for comfort.

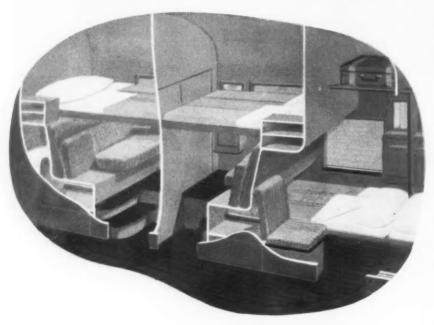
At present, passenger traffic volume, because of returning troops, is still very high, and no move to encourage still further travel by reducing fares will or should be made until 1946 is well along, and the railways can really handle civilian travel without interfering with the

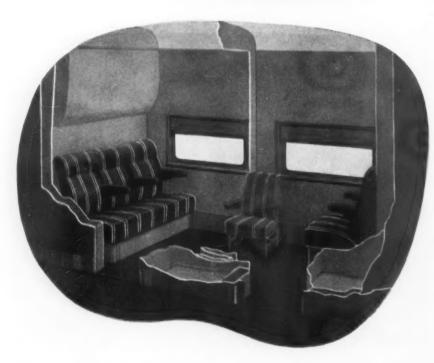
important business of bringing the boys home. One of the first moves in the direction of lower fares will probably be the elimination of the 10 per cent general increase ordered by the I. C. C. to remain in effect for the duration and six months thereafter. Additional cuts will undoubtedly be made, but not until the danger of overcrowding trains has passed.

Studies made on several of the railways indicate that the long waits for dining car service were one of the principal causes of passenger dissatisfaction during the war period. The inadequacy of the dining car fleet and slow and inexperienced cooks and waiters were responsible for this unfortunate condition.









Actually, despite the numerous complaints of all sorts, war-time passengers endured travel discomforts with astonishing equanimity. But the railways certainly cannot rely upon this continuing much longer. Now that they are able to proceed without previous handicaps, such causes for complaint as delays in meal service should be eliminated as rapidly as possible.

General Opinions

The opinions of officers of individual railways as to passenger preferences have been made available to all railways. The following paragraphs give some of the highlights as to the studies made and opinions expressed as to what the passenger wants. In addition, several of the more elaborate studies are reviewed separately.

Atlantic Coast Line—The passenger will want and expect many items of a luxury nature in future equipment.

Baltimore & Ohio-Passenger department officers and employees have formed an informal brigade of inquiring reporters and have asked numerous questions of passengers and prospective passengers. The passenger—still thrilled at America's "know-how" in winning the war and the application and use of such knowledge-wants to see the same "know-how" applied to the railway in-He wants streamlined transportation, of which streamlined, fast trains are only a part. Both the passenger and the B. & O. expect a transportation service streamlined and modernized in every respect. Leading the list of features, in addition to modern trains, are lower fares; modern, colorful, com-

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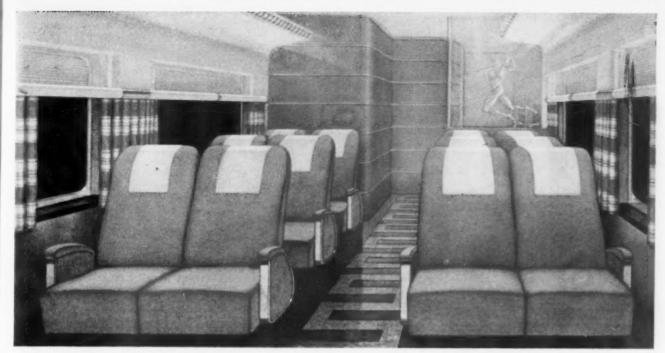
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New Types of Accommodations Developed by the Edward G. Budd Manufacturing Company

fortable interiors with private accommodations and sufficient recreation and lounging space; greater observation facilities such as the Astra-Dome; gracious dining service with good meals and prompt service; modern stations and station facilities; and simplifying the present rather cumbersome job of buying a ticket. The railroads are ingenious enough to give the passenger these things, as well as others which may surprise even an exacting public.

Chesapeake & Ohio—The public de sires the utmost in comfort, conveniences and improved schedules. We plan to meet these desires and, with the efforts of other lines as well, the appeal will be such as to assure great popularity and patronage.

Denver & Rio Grande Western—We have interviewed a large cross section of war-time passengers to find out what they want. Shortening of time is an important factor. Comfort, increased



Luxurious Appointments in Cars Designed by the American Car & Foundry Company

visibility and refinements and luxuries rank well in the lead. The courtesy of railway personnel also attracts passengers. A simplified fare structure presents a challenge that the railways will not miss. The railroads will continue to be America's favorite means of long distance mass transportation.

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Illinois Central—The passengers want fast, comfortable streamlined trains with commodious accommodations, manned by courteous, efficient personnel; also, as always, cheaper rates.

Missouri-Kansas-Texas — The public wants new, faster, more attractive trains to embody the latest appliances for comfort and well-being. Something different is wanted in the exterior appearance of trains as well as in interior fixtures and furnishings. Speed is a must requirement, with due consideration for the normal business day in hours of departure and arrival. A real forward step can be made in more efficient handling of passengers' baggage, particularly in curtailing the time required to disembark.

Northern Pacific—Trains should be modern in exterior and interior designs; they should be colorful, in good taste, comfortable and fast. Transportation should be so priced as to meet all competition.

Southern Pacific—Our passengers are looking forward to faster schedules, more comfortable coach seats, larger wash rooms and room space that will assure them of more privacy.

Passenger Research Committee

What the passenger wants has been taken definitely into account in the research activities of the A. A. R. A

passenger traffic division of the traffic subcommittee of the research project has been formed with F. H. Baird, general passenger traffic manager, New York Central, as chairman, and with passenger traffic officers from all sections of the country as members. For over a year an intensive study has been made of the various phases of post-war passenger traffic. Several sections of the report to be made as a result of this research have already been approved and it is expected that the entire report

will be ready for release and distribution about the first of the year. The principal subjects covered in this report are as follows:

Economic factors influencing rail travel volume.
Competitive outlook.
The private automobile.
The intercity bus.
Airlines and private flying.
Railroad basic passenger fares.
Pullman fares.
Coach equipment.
Sleeping, parlor and lounge cars.
Dining car service.
Speed of service.
Sales—pre-war.
Sales—post-war.





The Pressed Steel Car Company Has Engineered These Interior Arrangements

Railroad travel credit card.

Railroad travel credit card.
Terminals.
Train and terminal personnel.
Advisability of railroads engaging in other
forms of passenger transportation.
The branch line situation.

ffect of the war on the attitude of the traveling public toward rail travel.

New York Central Studies

In 1944 the New York Central employed the services of a research group to make a study of what the passenger wants. This comprised three surveys of passenger preferences, dealing respectively with coaches, sleeping cars and dining cars. Attractive booklets, handily arranged for marking preferences, were distributed on various trains to thousands of passengers and, after their reactions had been obtained, the results were scientifically classified and tabulated to obtain the majority opinion. Some of the results as to coaches were reviewed in the Passenger Progress Annual of the Railway Age of November 18, 1944, and a further summary is given below. The results of the sleeping car survey were recently released and are described herein, while the compendium of the dining car survey has not yet been completed. However, some of the questions asked in this latter survey are quoted.

As to coaches, more than 5,000 opinions from passengers, based on 60 questions, were secured. A large majority of both men and women, smokers and non-smokers, objected to indiscriminate smoking in coaches and suggested that it be allowed only in special smoking The male passengers named air-conditioning as the most important factor in travel comfort, while the

women voted for seating as the most important factor in the comfort of coach travel. (The questions were asked of passengers on both day and overnight coach trains.)

Temperature of about 74 deg. was listed as about right by most passengers, and the majority preferred individual, lean-back coach seats, reserved in advance. Present train speeds won as against higher speeds by a majority of about two to one, and four out of five passengers agreed that present schedules were convenient as to arrival and departure times. There was a distinct tendency noted among the passengers to be somewhat more conservative than the railway managements in that most of them prefer modern streamlined coaches of the present type, with moderate refinements, to anything more bizarre in equipment and furnishings.

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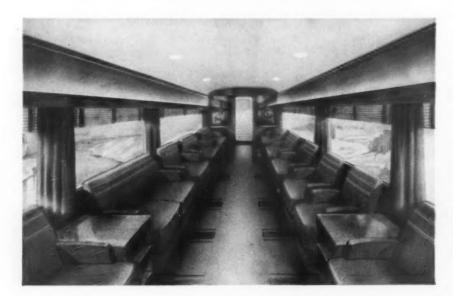
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The poll taken among sleeping car passengers indicated that air-conditioning and the comfort of private room accommodation were principally desired for post-war travel. Individual airconditioning and temperature control for each room were highly approved.

The average as between men and women ranked porter and other personal services second. The new roomette and bedroom cars (including the duplex type in each instance) were leading favorites. They received three times as many votes as the open-section lower berth.

The provision of lounge-car facilities ranked next in importance, men expressing preference for such comforts to a slightly greater extent than women. The lounge-observation type of club car was preferred to the mid-train club car by a slight margin. Such individual





The Pullman-Standard Car Manufacturing Company Has Planned These Colorful Interiors

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room comforts as personal washing and toilet facilities, writing tables, clothes closets, shoe boxes, etc., received high commendation.

More than 2,500 questionnaires were filled out and the answers are significant when taken in the light of previous travel experiences of these individuals. Of the men, 61.7 per cent had taken an airplane trip on a regularly scheduled flight and 30.6 per cent of the women. Following are the percentages who had previously used one or more of train accommodations named:

Men		Women
73.2	Lower	69.6
60.1	Upper	30.3
64.2	Coach	59.4
	Bedroom	42.5
55.6	Roomette	
39.7		
34.5	Drawing Room	22.5

The difference in travel preferences as between men and women is clearly indicated in the answers as to the choice of travel, which show that 43.2 per cent of the men and 45.7 of the women prefer the sleeping car. Only 29.5 per cent of the women prefer the airplane as against 43.4 per cent of the men, while 11.5 per cent of the women prefer private automobile travel as against 5.6 per cent of the men. Coach travel was preferred by 1.9 per cent of the men and 1.6 per cent of the women, while bus travel was





preferred by only a small fraction of 1 per cent of both sexes.

Dining Car Service

The dining car questionnaire, for which the returns are now being tabulated, contains such questions as the preferred location of the diner in the train and the type of diner-whether lunchcounter, grill, deluxe or standard. Also asked were questions as to:

> Seating arrangements Meal service outside diner Food vending machines Menus Children's meals Air conditioning Lights Lights
> Inter-car telephones
> Type of staff
> Type of plates
> Tipping
> Showing movies
> Serving drinks

Seaboard Study

The Seaboard has made a special study confined to questioning coach passengers on the streamlined "Silver Meteor" between New York and Florida. Present arrangements were listed as satisfactory by the following percentages of the male and female passengers questioned:

	Men	Women
Height of seat	82.0%	81.5%
Height of back and head rest		18.1%
Arm rest	87.1%	84.1%
Width of seat	53.0%	49.4%
Cushioning	53.9%	56.4%
Leg room	31.8%	35.6%
Day lighting	67.9%	70.9%
Night lighting	60.4%	60.2%
Wash rooms		44.5%
Air-conditioning	63.3%	63.5%

The larger percentage of both sexes voted for individually controlled lighting, baggage compartments at ends of coaches, electric-eye door openers, public address systems, radio and soft decorative schemes. By a small majority, present type diner and observation car seating arrangements won out over more unconventional types.

The transportation preferences of those questioned were as follows:

	Men	Women
Train	44.7%	49.6%
Airplane	27.9%	17.6%
Automobile		
Bus	0.6%	0.4%

The answers to the question as to what would be the determining factor in post-war trips are interesting in the differences shown between the business and pleasure travel and also the difference of opinion between men and women.

Business Travel	Men	Women
Speed	48.9%	42.0%
Convenience	16.0%	15.9%
Comfort	7.8%	8.2%
Economy	6.8%	4.5%
Pleasure Travel		
Comfort		64.6%
Convenience	9.0% 5.0%	9.2%
Speed		2.7%
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Frisco Studies

The Frisco polled selected groups of passengers through their uniformed women passenger representatives traveling on various trains. Passenger officers and employees also contributed to this study, the results of which were "jelled" as follows:

Speed: Competitors, especially in the air, will use speed as the primary appeal tor traffic. Faster rail schedules were voted for by 81 per cent of the passen-

Salety: Every means of preventing accidents must be employed. This appnes also to roadbed and equipment. The safety of rail travel was of primary appeal to 82 per cent of the passengers.

Comtort: The passengers, in commenting on comfort, ran up a vote of 22 per cent in tayor of individual and sent-regulating air conditioning. According to 91 per cent, sanitary conditions were excellent; 52 per cent considered that wash and toilet room facilities were adequate, although women were almost unanimous in wanting additional dressing-room space.

Service: The opinion of 44 per cent was that service could be more triendry and helpful. The Frisco is contemplating personnel training courses in public

Appearance: 78 per cent of the passengers were satisfied with the average train turnishings (other than seats) but the consensus-of both men and women -was for more eye-pleasing pastel colors, more indirect lighting, etc.

Cost: Although 73 per cent of those questioned felt that fares were reasonable, cost will be one of the major tactors influencing mass transportation. A basis of fares low enough to attract the maximum number of passengers, yet high enough to be compensatory, must be sought.

Dining Cars: Pullman passengers expressed preference for regulation diners, while coach passengers voted for Frisco snack cars, in which the service is lunchcounter style.

Luxuries: 94 per cent wanted lounge bars, nurseries, motion pictures, barber and beauty shops, and a considerable number of these indicated willingness to pay extra fare for such added conveniences.

Power: 85 per cent expressed preference for Diesel-electric power, stating that Diesels afford smoother and cleaner rides.

Santa Fe Studies

The Santa Fe distributed among its passengers a questionnaire in booklet form called "My Ideas About Post-War Train Travel." This covered a com-This covered a complete range of questions as to coach, sleeping-car, diner and club-car accommodations and service. This comprehensive survey has not quite been finished as yet, but sufficient returns are in to prove that the principal features of interest to future rail passengers are:

Fast lightweight streamlined all-sleeping car trains with corresponding lounge and dining car service; trains to be Diesel-powered.

Development for overnight passengers of small rooms-roomettes, bedrooms, duplex rooms, etc.

Lightweight streamlined coach trains with comparable lounge and dining cars; trains to be Diesel-powered; operated on a fast schedule, with minimum station stops.

The development of comfortable chairs

and coach seats.

In addition to the circulation among passengers, such booklets were mailed to a selected list of newspaper and magazine editors, and the answers received were included in a special tabulation.

Seating Survey

Most of the companies manufacturing seats for railway cars have studied the matter of seat comfort for post-war cars intensively. One such company, in connection with the Boston & Maine, engaged the services of Dr. E. A. Hooton, an authority on physical anthropology, to conduct a series of tests at North Station, Boston, by means of adjustable chairs, to determine the most comfortable seats. The results are contained in a book, "A Survey in Seating," which The results are contained comprises a comprehensive survey of body measurements relative to the dimensions of seats in railway passenger

The aim was to measure a good sample of the adult population, especially those who habitually use trains. Care was taken to secure representative individuals of the various age, weight and stature groups.

Among the findings were that a 20-in. seat length would accommodate 85 per cent of the men and 95 per cent of the women. Other recommendations were:

Seat height :	 16.9	in.
Back height	28,0	in.
Elbow height	8.5	
Hip breadth		
Shoulder breadth	10 0	0.03

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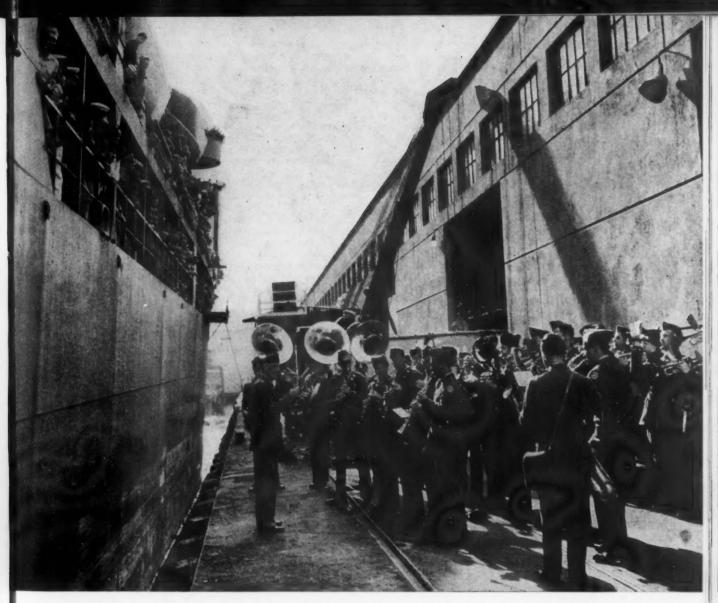
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What does the passenger want? For the first time, the railways have engaged in a practical, scientific study with a view to answering this question. The studies are certainly valuable enough per se, but they have the additional and hopeful implication that railway passenger service of the future will not be a hit-or-miss proposition. What these studies really constitute is the most outstanding "market analysis" ever made of passenger traffic.

The design of passenger trains and the types of service offered are no longer to be governed—as they were too many times in the past-by the convenience of the operating and mechanical departments. The overwhelming percentage of officers in these departments-and most importantly, executive officers-have lost any thoughts they may have had that passenger service was a nuisance. In the future, passenger service will be governed to the greatest extent possible by the desires and needs of the passenger. From now on, the customer will be, figuratively, in the driver's seat. This is as it should be and must be, if passengers are not to be literally in the driver's seats-of their private automobiles.

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Between October 1 and Next June 30 More Than Six and One-Quarter Million Returning Servicemen Will Arrive at the Ports

Railroads Still Have War Job to Finish

It is the tremendous task of providing domestic transportation for more than 6,000,000 service men who will come home during the next eight months

A MERICA'S railroads handled nearly 44 million members of the armed forces during the 45-month period between Pearl Harbor and the cessation of hostilities with Japan, but V-J Daydid not mean that the carriers, like most other industries, could turn their full attention to recouping and further developing peacetime markets. They still have their war job to finish.

It is the tremendous task of bringing home in a matter of months the country's armed forces which it took more than three and one-half years to build up throughout the world. The demobilization plan will mean heavy troop movements continuing through June, 1946, with some of the monthly loads rivaling peak movements during the period of hostilities on both fronts.

While such estimates have been more or less "subject to change without notice," the latest forecast, as this was written, indicated that arrivals at the ports between October 1 and June 30, 1946, will total 6,292,000 service men—2,130,000 at East coast ports and 4,162,000 at West coast ports. Meanwhile,

other troops and prisoners of war will be moving by rail to ports of embarkation, the estimated total for the nine months (with Navy figures missing) being 1,000,000, including 700,000 departing from East coast ports and 300,-000 from West coast ports.

Scheduled arrivals on both coasts for October totaled 850,000 for all services, and the estimated totals for the eight subsequent months were as follows: November, 922,000; December, 980,000; January, 730,000; February, 670,000; March, 650,000; April, 630,000; May,

480,000; June, 380,000. Departures, put at 100,000 for October, were expected thereafter to range from January's 162,000 to 50,000 a month during April, May, and June. Prisoners of war included in this outbound movement will total 397,000, all of them scheduled to have left the country by the end of next March. They will move out at monthly rates ranging from November's 68,000 to March's 83,000.

While the foregoing figures measure the major burden of the job ahead, they fail to cover all organized military travel which the railroads will be called upon to handle during the coming months. They do not include so-called "interior" movements within this country, which will put upon the carriers the additional monthly load indicated by the expected shift of 350,000 troops in November and 300,000 in December.

Three to Six Trips

Moreover, the troops arriving at the ports do not make one journey but from three to six trips depending upon whether they are demobilized or merely given a furlough at home and reassigned to further foreign service in the armies of occupation. The machinery which "demobilizes" or "redeploys" returning troops is set in motion by theater commanders when they advise the War Department of units available for return to this country. The War Department replies with advices as to when the units will be taken on transports from the foreign port of embarkation.

Meanwhile, the theater commander has classified the men of the unit to be embarked into "separation" and "reception" groups, the former being those entitled to be demobilized, and the latter those scheduled for further "processing" and reassignment after their furlough at home. The purpose of this grouping is to facilitate segregation and assignment of transportation in this country; and advices as to groups embarked and the number of men in each are cabled to Transportation Corps headquarters.

Information in these cables from the different theaters is coordinated and the Passenger Branch of the Corps' Traffic Control Division advises the railroads as to what the movements from the ports will be, such advices coming three to five days in advance of debarkation day. It is claimed at T. C. D. that ship-arrival schedules are now being "hit on the nose"—or as close as weather and other unpredictable variables permit.

The ship-arrival information furnished to the railroads is embodied by T. C. D. in a memorandum to the Military Transportation Section of the Association of American Railroads, and a copy goes to the Office of Defense Transportation. The memorandum, prepared after all arrivals of a particular date can be definitely listed, calls for suggested routings of the movements set up; and the routings are supplied by representatives of the railroads' territorial passenger associations who are assigned to the headquarters of the Military Transportation Section in Washington's Pentagon building, which is also Transportation Corps headquarters. The suggested routings are accepted by T. C. D. if they fit the Army's needs, and they usually do. They have, however, been vetoed in a few instances, most of such cases involving hospital cars or trains.

The first domestic trip of the returning service men is a short ride from shipside to a nearby staging area. This local movement, often by bus but sometimes by train, is a run of from 20 min. to 1 hr. 20 min. However, the real job of the railroads starts from 24 to 48 hours later when they must haul the men from the staging area to a personnel center.

The personnel center includes the reception station for the "processing" of men being given a furlough at home prior to reassignment, and the separation station for the dismissal of those being demobilized. The former must next be carried home for their furloughs, back to the reception station, thence to an assembly station, and finally to a port of embarkation. Thus they complete their six trips.

Even though the men passing through a separation center leave it as civilians, with their travel no longer under Army control, they still have to get home. For that journey, which is a six-hour rail trip on the average, they receive an allowance of five cents per mile, and the Army undertakes to keep the railroads advised as to what may be expected in the way of travel by men released. For their own part, the railroads have been maintaining a joint representative at each personnel center as well as at various posts, camps, and other military establishments.

As indicated at the outset, the railroads came to their major role in the demobilization with an outstanding record of achievement in moving troops during

Troops Arriving by Train at Camp Myles Standish, Mass.

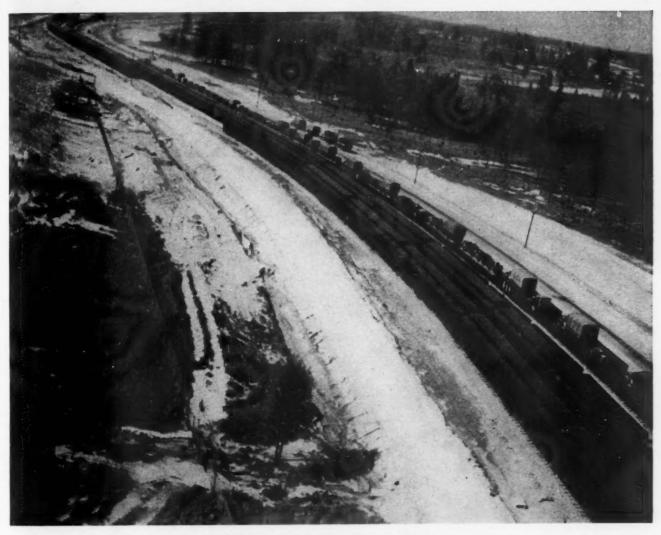


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Trains Lined Up to Move Troops and Their Equipment

the 45 months of hostilities. The total of nearly 44 million handled between the December 7, 1941, attack on Pearl Harbor and the end of last August is the estimated aggregate of all movements, organized and unorganized, but does not, of course, include men traveling on furlough. Organized movements are those in groups of 40 or more coming under jurisdiction of the Traffic Control Division. Movements of smaller groups remain decentralized with the Army's local field transportation officers, although there has recently been an exception applying to hospital traffic. In order to reduce the deadhead mileage of hospital cars, T. C. D, has taken control over movements of patients in groups of 15 or more.

Most of the detailed data available are confined to organized movements, and those will be the figures used hereafter unless otherwise specified. Taking organized movements for the Army alone, the railroads carried during the

Prisoners of War—The 397,000 Now in This Country Will Have Been Sent Home by the End of March



first 20 months of the war a total of 13,954,510 troops. This compares with the 5,046,092 carried during World War I in which the United States participated for a period of nearly 20 months.

The A. A. R.'s Military Transportation Section did not begin compiling detailed monthly figures on organized movements handled for the armed services until March, 1942. The monthly totals from that time through August are shown in Table 1. They include Army, Navy, Marine Corps, and Coast Guard personnel. The detailed figures for August are given in Table 2. month was the all-time peak with a total of 1,266,210 persons carried and a passenger-mile figure of 1,399,307,960. The previous highs were August, 1943, with 1,104,426 persons carried and March, 1943, with 1,309,323,000 passenger-miles.

From January through August of this year, 6,495,092 members of the armed forces traveled by rail in 51,216 organized movements-22,810 on regular trains and 28,406 on special trains. The movements involved 7,092,405,000 passenger-miles and required 193,835 cars. With respect to equipment used in troop movements, it is interesting to note the lessened use of freight cars in the latter months of the war as compared to the earlier ones. The June, 1943, movements, for example, required 7,515 flat cars and 1,033 box cars in addition to the necessary passenger-train cars, whereas in April, 1944, when more personnel were moved, only 1,294 flat cars and 367 box cars were used.

This may be attributed in part to the fact that relatively more of the troops were in training in the earlier period, and trainees carry more of their equipment with them. Another important factor, however, has been the equipment 'swapping" plan under which a unit being transferred left much of its heavy equipment for its replacement unit and found at its new post equipment left behind by its predecessor there.

The big troop-handling job performed by the railroads during 1945, as in the other war years, was, of course, part of the whole passenger load which broke all pre-war records. It is true that 1945 passenger business has been under 1944's all-time peak, but it is nevertheless tremendous as measured by any other standard. Revenue passengermiles during the first nine months (the August and September figures being preliminary) totaled 67,037,278,000. preliminary) totaled 67,037,278,000. This is only 7.4 per cent below the comparable 1944 total. It is above the comparable 1943 figure of 64,431,647,000, and it also exceeds 1942's 12-months total of 53,679,628,000.

The pre-war peak of passenger-miles occurred in 1920 when the total was a little short of 47 billion; the depression low was 1932's 17 billion. Passengermiles for the current year's 12 months are expected to be about eight per cent below 1944's all-time peak of 95,575,-196,000, and the business may be expected to hold pretty much at present levels until new automobiles and tires are more generally available.

Toughest Year

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The wartime passenger load, handled as it was under conditions of manpower shortages and prohibitions against the acquisition of new equipment, put a severe strain on the carriers, with the pinch naturally becoming tighter as time went on. Thus 1945 became the toughest war year for the rail traveler, bringing additional restrictions on civilian journeys and the so-called "atrocity" stories about accommodations furnished by the railroads for returning service men. Also, it has been a year of reiterated "don't travel" appeals, including that issued by President Truman on June 7.

The restrictions, many of them removed since V-J Day, included bans on the transportation of race horses, and on conventions, fairs, trade shows and group travel. Also there was the curtailment of facilities for travel to summer camps and school and college athletic contests. In January came the O. D. T. order requiring railroads to discontinue resort trains and establishing a permit system for the operation of any train on which the occupancy of seats and space did not average 35 per cent during November, 1944. Later on

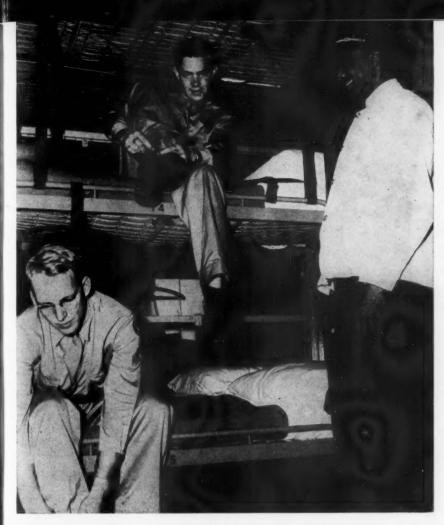
Table 1-Military Personnel Handled in Organized Movements

	Number of	of Movements			
Year and Month 1942	(On Regular Trains)	(Special Trains)	Number of Cars	Passengers Carried	Passenger Miles (Thousands)
March April May June July August September October November December	991 1,161 1,400 1,703 2,042 3,024 3,304 3,092	1,183 1,459 1,361 1,385 1,684 1,893 2,496 2,445 2,898 2,444	15,762 19,364 18,283 20,908 25,787 28,391 34,068 31,577 36,276 27,662	406,859 517,311 494,678 485,766 600,145 714,492 875,420 887,054 973,246 857,836	451,808 589,093 550,295 524,840 670,376 804,150 1,015,939 997,106 1,120,933 962,481
1943					
January February March April May June July August September October November December	3,905 4,141 4,216 4,031 4,040 4,038 3,884 3,653 3,391 3,346	2,739 2,595 3,203 3,023 2,184 2,471 2,410 2,766 2,605 2,339 2,373 2,507	34,904 27,895 36,522 38,545 29,915 37,399 29,769 36,569 35,844 28,277 30,827 29,049	953,458 904,086 1,099,457 1,098,395 881,816 983,797 935,806 1,104,426 1,027,663 882,249 901,204 859,099	1,100,664 1,015,000 1,309,323 1,209,535 925,122 1,062,717 1,027,848 1,291,849 1,215,253 952,716 984,673 932,114
1944					
January February March April May June July August September October November December	. 3,023 3,433 3,318 2,858 2,615 2,812 2,880 2,901 2,644 2,683	2,489 2,613 2,924 3,214 2,277 2,349 2,180 2,558 2,784 2,797 2,723 2,987	31,314 29,718 35,426 34,008 27,028 26,557 26,075 27,540 30,109 27,779 24,660 24,311	888,416 908,550 1,084,589 1,070,810 848,953 815,726 778,216 838,551 920,370 869,297 756,692 761,178	1,034,033 971,334 1,242,167 1,201,963 831,842 814,087 870,923 904,517 1,088,956 1,002,912 842,806 845,027
1945					
January February March April May June July August	. 2,374 . 2,455 . 2,244 . 2,631 . 3,224 . 3,467	2,902 2,714 3,220 2,778 3,305 4,240 4,468 4,779	23,286 20,860 20,387 18,740 21,622 25,795 27,979 35,166	727,650 641,981 637,890 594,672 684,007 909,924 1,032,758 1,266,210	807,860 740,480 644,009 622,246 819,174 9962,280 1,097,040 1,399,307

Table 2-Military Personnel Handled in Organized Movements

August, 1945

	Туре		
	egular Trains Passengers	Special Trains Passengers	Total Passengers
Army Patients Prisoners of war Navy Marine Coast Guard Miscellaneous	13,783 2,339 24,581 2,036 3,409	956,511 27,757 29,958 44,576 11,205 335 1,816	1,102,254 41,540 32,297 69,157 13,241 3,744 3,977
Total passengers	194,052 189,783	1,072,158 1,209,524	1,266,210 1,399,307
Type of Equipment	Cars	Cars	Cars
Sleeper Coach Baggage Kitchen Hospital Freight	1,797 222 237 939	12,582 10,561 2,115 2,370 766 23	16,128 12,358 2,337 2,607 1,705
Total cars	6,749	28,417	35,166



Interior of Troop Sleeper—These Were the Only Passenger Cars Built During the War

the Navy was required to follow the Army's practice of assigning two men to a lower berth on sleeping cars, while the order prohibiting railroads from selling or allocating space on any passenger train more than five days in advance came along on June 29, although it was eased after V-J Day to permit reservations 14 days in advance.

Earlier in June the railroads had created a pool of 500 passenger-train cars to be administered by the A. A. R. Car Service Division in an effort to speed up the movement of troops. On July 17 O. D. T. issued its General Order 55, setting up mandatory controls for the assignment of any or all passenger equipment, except sleeping cars, to military use, prescribing procedures similar to those which the railroads had already adopted voluntarily. W. C. Kendall, chairman of the Car Service Division, was appointed O. D. T. agent to administer the order.

Civilian Sleeper Ban

Meanwhile, on July 7, O. D. T. had issued its most drastic order of the year—General Order No. 53, which prohibited the operation of sleeping cars on any run of 450 miles or less. This resulted in the withdrawal of 895 sleeping cars from regular civilian runs for the use of military personnel. It brought

to 5,000 the number of Pullman sleeping cars thus assigned, leaving only 2,500, or one-third of the entire fleet of 7,500, available to handle all civilian travel. The order is not expected to be greatly eased before the end of the year, when deliveries on the second lot of 1,200 troop sleepers and 400 kitchen cars ordered by the government are scheduled for completion. These two lots of troop sleepers, the first having been delivered sometime ago, comprise the only wartime relief received by the railroads in the way of new passenger equipment.

The sleeper ban came at a time when difficulties in connection with the handling of troops were at the most acute stage. It was the period between V-E Day and V-J Day, when all efforts of the military leaders were concentrated on the rapid "redeployment" of the forces in Europe to the Pacific, the "redeployment" program calling for furloughs in this country of the men involved. And this was the period of the so-called "atrocity" stories. These were newspaper accounts of complaints raised by service men who were moved long distances in allegedly old and inferior coaches, sometimes of the commuter type. Also, there were reports of longdistance troop trains of coach consist being sidetracked for the benefit of wellappointed Pullman trains carrying civilian travelers. All of which led to Congressional hearings before the Senate's special war investigating committee, known as the Mead committee.

While there were various charges and counter-charges and claims and counterclaims, Colonel J. Monroe Johnson, director of O. D. T., insisted that the railroads were doing an outstanding job, considering their wartime difficulties and the instability of estimates furnished with respect to the Army's troop-arrival schedules. Out of the hearings came closer working arrangements in the latter connection between the Army and O. D. T. And Colonel Johnson's most recent pronouncement on railroad accommodations for the service men was an October 26 statement saying that he wasn't worrying about the matter, for "the boys are getting better transportation when they set foot in a train in this country than at any other stage of their journey home."

On this matter of providing sleeping accommodations for its personnel, the Army "insists" that sleeping cars be assigned to runs of 48 hours or more. For overnight runs under 48 hours, it also demands sleepers if they are available after all 48-hour schedules are protected. Table 3 reveals how well these goals were achieved day by day in September. It shows that sleeping accommodations were provided 94.8 per cent of the troops making journeys of 48 hours or more; 67.2 per cent on trips of 36 to 47 hours; 45.3 per cent on trips of 24 to 35 hours; and 23.4 per cent on trips of 12 to 23 hours. When sleepers are scarce, preference over all other service personnel is given to hospital and litter patients, regardless of the number of nights or distance of travel involved.

Army Reservation Bureau

Aside from its work of directing all organized troop movements, the Traffic Control Division also operates the Army Reservation Bureau through which more than 6,000,000 Pullman reservations have been made for military personnel



Table 3-September, 1945, Troop Movements and Equipment Furnished by Carriers

		Travel Time 12 hrs. to 23 inc. Personnel		24 hrs.	1 Time to 35 inc. onnel	36 hrs. t	Time o 47 inc. onnel	Travel 48 hrs. Perse	to over
Date		Coaches	Sleeping	Coaches	Sleeping Cars	Coaches	Sleeping	Coaches	Sleeping
Sept.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 22 24	5,795 3,018 7,425 4,675 3,967 6,767 5,045 3,732 3,604 9,430 9,906 4,585 6,157 5,422 8,531 6,646 9,333 4,486 11,486 10,381 6,890 3,377 3,735	689 749 697 2,085 2,518 932 1,301 2,295 1,470 1,574 3,282 4,475 3,1176 1,039 822 1,811 1,670 1,308 2,528 1,1442 1,670 1,308 2,528 1,148	7,390 7,390 5,490 3,219 618 4,155 2,790 520 2,246 6,362 4,012 5,075 6,020 8,364 4,012 5,075 6,020 8,364 6,409 5,407 1,956 1,957	1,438 1,338 1,114 2,177 3,510 3,876 4,079 2,514 2,438 4,113 6,108 3,277 3,994 1,697 2,422 1,997 2,422 1,997 2,422 1,997 1,438	3,350 776 3,539 1,380 796 354 1,851 2,130 2,567 1,476 1,23 1,923 1,499 702 1,015 1,015 1,432 2,309 3,683 1,706 381	4,153 2,019 2,456 3,556 3,802 4,852 4,852 4,977 1,971 3,465 5,398 4,214 2,714 3,876 3,054 2,420 3,538 2,420 3,583 3,452 1,241 1,241 2,411	834 125 178 443 102 21 177 139 467 466 200 497 551 1,404 1,719 2,335 1,285	9,079 2,982 7,193 4,866 5,915 2,965 6,713 6,362 3,842 5,255 10,335 6,546 6,127 9,021 11,004 7,144 7,144 9,814 6,011 12,071 112,753 12,268 2,158 5,489
	25 26 27 28 29 30	4,671 3,792 3,435 6,271 4,573 5,282	991 1,191 4,146 1,939 1,832 1,365	1,335 2,106 884 2,642 809 1,413	2,131 2,049 2,164 2,525 3,714 5,606	110 1,254 1,712 1,741 94 103	1,965 376 2,364 1,514 2,089 1,396	124 600	11,154 7,630 8,529 8,150 6,225 3,691
Total		180,670 76.600%	55,192 23.400%	107,287 54.675%	88,937 45.325%	42,828 32.789%	87,786 67,211%	11,787 5.196%	

traveling individually or in small groups. The service has also been available to personnel of the War Production Board and Office of Price Administration.

Establishment of the Bureau was considered necessary to take care of military travelers who could not successfully compete in a market where the general

public could plan trips further in advance and thus preempt available space. It opened for business when it set up its Washington office in mid-1942, and it now has some 44 main offices and 50 branches in railroad stations throughout the country.

Designed principally to handle the temporary-duty travel of officers, the Bureau originally confined its activities to the making of reservations for from one to three military travelers. Later it took on the job of making reservations for first-class furlough travel, and it was finally expanded on October 15, 1944, to accommodate military groups of 14 or less. Thus all military travel became protected in one way or another, since the railroad territorial passenger associations make reservations for groups of 15 to 39, while groups of 40 or more are the organized movements handled by T. C. D.'s Passenger Branch.

To accommodate the Bureau, railroads have been holding specified percentages of the available space on trains out of various points. The amount of space so held is based on continuing studies of the armed forces' requirements and the percentages vary at different points. The over-all figure has been estimated at 10 per cent of all available sleeping-car space. The space is held for the Bureau until specified hours on the date of the trains' departures, and any not taken by that time is released for public sale.

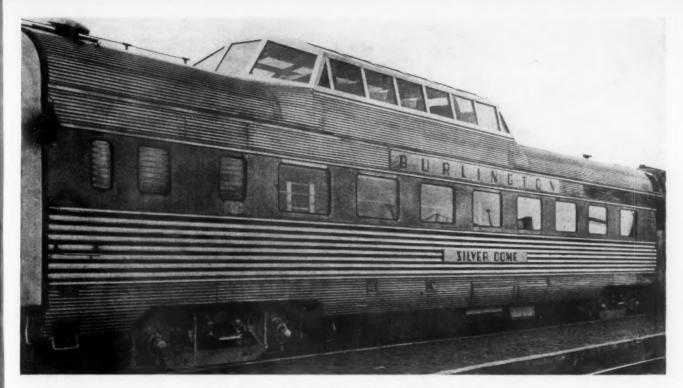
The set-up also includes the operation of military sleeping-car lines for the exclusive use of persons obtaining their reservations through the Bureau. The cars serving these lines run on a regular daily basis on regular trains, and here again the unused space is released to the public. The lines were established in October, 1944, to take care of the aforementioned expansion in Bureau activities which came on that date.



Main Office of Army Reservation Bureau in Washington's Pentagon Building

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Vista-Dome Car of the Chicago, Burlington & Quincy

Many Innovations Expected in New Passenger Car Designs

Changes will consist primarily of improvements in trucks, structural details, interior decoration and equipment, designed to have maximum public appeal

RAILROAD passenger - carrying equipment on August 31 included 19,962 railroad-owned cars and 8,705 Pullman cars, or a total of 28,667 cars. Roughly 50 per cent of the railroad cars are over 25 years old and less than four per cent under six years old, according to figures compiled by the American Railway Car Institute. In the case of Pullman equipment, 25.17 per cent of the cars are over 25 years old and 27.49 per cent under six years old. The inability of most of this old equipment to meet anything like modern service standards and competitive requirements is obvious and indicated by railroad orders for new passenger cars. On August 1, for example, there were on order for domestic railroads 1,155 passenger train cars, almost equal to four years average production during the 12 years preceding the war, and additional sizeable orders have since been placed with both contract and railroad shops.

What will the new passenger equip-

ment be like? Possibly the Vista-Dome car, rebuilt by the Chicago, Burlington & Quincy to incorporate an original General Motors idea, described in the Railway Age issue of August 11, best typifies railway passenger cars of the future, not because all, or even a large proportion, of such cars will have observation domes, but because this car illustrates the keen desire and courageous determination of progressive railway managements to try every feature of passenger car design which promises to give greater customer service, comfort, or satisfaction.

New car designs, therefore, may be anticipated, utilizing lightweight materials, welded fabrication for the most part, easier-riding trucks, improved structural details, new interior arrangements, colorful decorative treatments and convenience features best covered by the expression, "The sky is the limit". In a syndicated article quoted in the October 20 Railway Age, Westbrook Pegler used his powers of pungent expression to

declaim against too much "hand holding and baby kissing" in modern railway salesmanship, maintaining that safety, comfort and privacy for those who like it are the prime objectives in passenger transportation, that super-speeds are definitely objectionable and frills such as de luxe service, radio, movies, game rooms, etc., are non-essentials, or worse. There is an important germ of truth in Mr. Pegler's comments; nevertheless all indications point to redoubled railway efforts to give passengers what they think they want in the new cars, practically regardless of any other consideration except safety.

The Modern Coach

Typical or at least representative of what may be expected in coach equipment of the future is the Slumberliner-type coach, suggested by the American Car and Foundry Company as possibly the best revenue-producing tool of the



No One Wants to Sleep in the Dome Compartment

railroads. As described in the Railway Age of August 25, the design of this coach is revolutionary in many respects. While intended to offer maximum revenue to the railroads, it provides attractive and luxurious accommodation for passengers and many features not heretofore encountered in this low-cost type of transportation. Notable among these features are: Improved washroom facilities for men and women, comparable to "vanity" those of the finest hotels; a room for women; improved seating with a folding armtray at each seat; individually controlled day or evening lighting; full-vision doors which operate automatically; ingeniously devised individual lockers; and a new type baggage rack, which also serves as a light reflector.

Improvements in the design of washrooms for men and women offer greater
facilities and a higher degree of sanitation. Additional folding washstands in
the men's room to take care of the
morning rush, when not in use, fold back
into the wall and a comfortable couch
to seat three or four passengers comes
into place. Armrests on the couch may
be folded back to provide a full-length
sofa in case of illness. The purpose of
the dual arrangement is to supply additional and ample toilet facilities when required, and a comfortable men's smoking
lounge by day.

The vanity room with its softlylighted interior has three "vanity" tables arranged in semi-circular fashion, thus allowing three women to freshen up at the same time with ease and comfort. By merely lifting the table tops of the vanities, three individual wash basins are made to appear. These automatically drain as the lids are closed down again. Inset tissue and soap dispensers and wing mirrors suggest the elegance of a modern hotel. Underneath the vanity is a waste receptacle for the disposal of towels and tissues. All plumbing is concealed and completely sanitized. Corners are coved for easier cleaning.

are coved for easier cleaning.

Functional drapes and "dayflector" windows of this coach are unique in arrangement. In the upper third of the window, between the inner and outer glass, curved, highly-polished stainless steel slats are inserted. These serve to catch the daylight and relay it to the underside of the baggage rack, making the latter a diffusing reflector for indirect light. The functional drapes work on a curtain track and each covers half a window so that it is possible for two passengers seated at one window to suit their own individual tastes of either excluding the light or of watching the passing scene.

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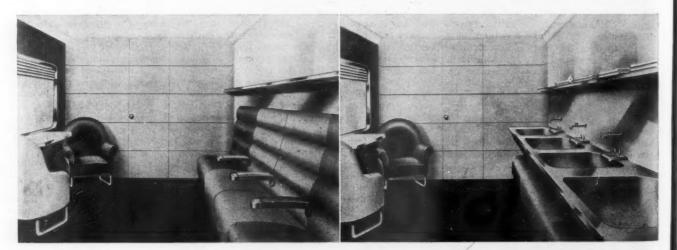
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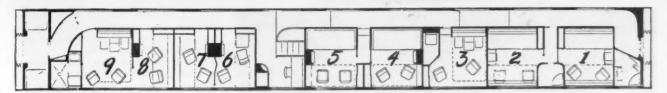
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Low-level boarding of the car is made easier by carefully designed shallow steps and handrails. Passage through the vestibule has been safeguarded by swinging handrails which latch into position longitudinally of the car from the body door sides, or against the coach body wall when passengers are leaving or boarding the car. Each handrail has three bars in varying heights, for children and grown-ups to reach according to their stature. The doors between cars are mechanically operated and, by means of three round windows, give full-length vision into the vestibules. Curving side walls of the women's and men's rooms do away with harsh angles and allow greater facility of movement through passageways and between cars.

A new type of baggage rack, fully enclosed and forming a structural part of the car body, has sanitary coves for easy cleaning. Luggage lockers are made more readily accessible through the condensed arrangement of the men's

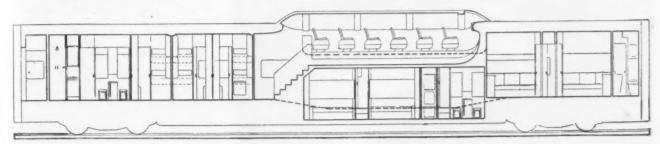


Men's Lounge in A. C. F. Slumberliner Coach-Couch Back Folds Out to Form Four Wash Basins



Cross Section and Floor Plan of General Motors Astra-Dome Sleeping Car

Length of car over buffers, ftin.	84-6	Between truck centers, ftin 59.6
Top of car to rails, ftin,	13-6	Passengers in sleeping rooms
Top of Astra Dome to rails, ftin.	15-0	Passengers in Astra Dome



and women's washrooms, which has eliminated long passageways and expedites the unloading of luggage.

In addition to luxurious modern coaches with unusual lounge space and the same seating capacity as in cars built just before the war, a Day-Nite coach, designed by the Pullman-Standard Car Manufacturing Company offers special provisions for sleeping comfort and private dressing room facilities on long-distance overnight trips. In a Threedex commuter coach design, developed by the same company, passengers will enter at either side of the car on a middle level (the same as the floor level of present coaches) and ascend a central stairway to the top deck of seats or descend one of two side stairways to the lower deck.

The arrangement of seats on the top deck is similar to that in present coaches, with 13 forward-facing double seats on each side of the center aisle providing room for 52 passengers. On the lower level, two rows of 22 outward-facing seats accommodate another 44 riders.

There also are four game rooms, two at each end of the coach on the middle level, for 13 more commuters. Here, on tables and facing seats, tomorrow's commuters will be able to play cards en route to the office. If preferred, conventional seats may replace these sections.

Among special features of the Threedex commuter coach are its four washrooms and toilets, two at each end of the car. Another convenience is a baggage rack on the lower level behind the central stairway. On this shelf, out of the way of other passengers, the commuter can place his luggage whenever he goes to the office prepared to leave town before returning home.

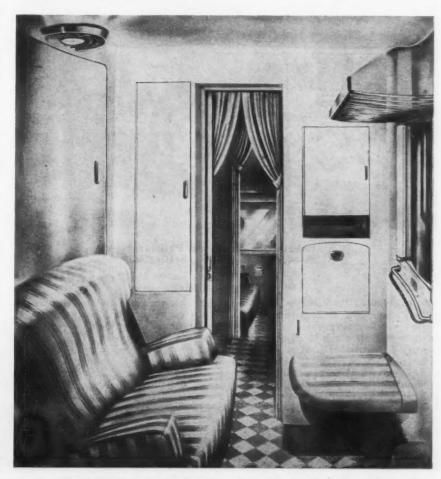
Wide windows on each deck flood the car with daylight. General artificial illumination is supplemented with special focused lighting at the reading level in each seat. The car will be streamlined and thoroughly modern in equipment. Interior decorative treatment will feature especially the attractive entrance way with its central-ascending staircase

flanked by descending stairways which lend themselves to a variety of smart appointments, depending upon the preference of individual roads.

Sleeping Cars

In the field of low-cost railway sleeping accommodations, two cars, developed by Pullman-Standard, include the threetier sleeper and the Duplex-Roomette. The former is a comfortable coach by day and a sleeping car by night, with full-length beds. It is built in the continental manner, with seats on one side of the car and the aisle on the other along the windows. The adjustable, deep-cushion seats have individual arm and foot rests.

At night each seat area is converted



Room Arrangement for Day Occupancy in New Budd Cabin Car



Diagonal Seating Arrangement in New Pullman-Standard Dining Car



Interior of Proposed Pullman-Standard Cafeteria Car, Seating 56

into a group of three berths, an innovation in sleeping arrangement. Each berth is easily accessible, individually private and air conditioned. The designers have also created sections for six passengers by facing two seats. Each three- or six-passenger compartment contains ample luggage space, individual clothes hangers and a concealed wash basin. Toilets and extra washing facilities are also provided at each end of the car.

While the three-tier sleeper is one of the new railway car designs, four of these cars were built and put in experimental service just before the war. Shortly after war broke out, all four

were assigned to military service as troop carriers, but during their short service they proved highly popular with budget-minded travelers. It is expected that new models will contain many improvements over these first cars.

The Duplex-Roomette car, containing 24 individual accommodations, is quite similar to the roomette car, an earlier development which contained only 18 of these accommodations. The increased capacity of 24 is achieved by means of a duplex arrangement, with alternate rooms two steps above the aisle level. This brings the number of beds in the car to nearly the same as the older open-berth Pullman, which con-

sists of 14 lower and 14 upper berths. For the passenger this means that a duplex-roomette will cost little, if any, more than the lower berth.

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As in the roomette, each duplex-roomette contains a full-length bed which is made up before the train leaves the terminal. In the upper level rooms, the bed folds into the wall just as it does in the roomette. In the aisle level rooms, however, it slides into a compartment under the adjacent room. The services of a porter are not required in either room for bringing the bed into position or for returning it to its day-time, out-of-the-way position.

Each duplex-roomette also has complete concealed toilet facilities, a large window, air conditioning and personal control of heat, lighting and ventilation.

The design of this type of car was completed before the war and one such car actually was built before passenger car production was suspended. In nearly three years of emergency war-time service on some of the nation's most famous trains, this car has rolled up an impressive 750,000 miles of service and thus afforded a unique opportunity to test out all promising suggestions for improvement. The latest design is said to incorporate 106 new improvements and refinements over the original duplex-roomette car, each of which contributes to the passenger's greater comfort and convenience.

"Budgette" Sleeper

A revolutionary design for an all-room railway sleeping car, proposed by the Edward G. Budd Manufacturing Company, offers comfortable, private, singleoccupancy, day-and-night accommodations. This new sleeping car, streamlined and built of stainless steel like all other Budd railway cars, including coaches, diners, observation cars and head-end equipment, will accommodate 32 passengers and is known as the Budgette car to typify the low-cost dayand-night room service supplied. This car is intended to replace the old-fashioned open-berth sleeper, now considered obsolete by the majority of the traveling public. In doing this, it provides privateroom accommodations in a standard 85ft. car for more passengers than could be accommodated in the pre-war standard sleeping car.

The Budgette car contains two types of rooms. One is entirely on the car aisle level; the other, slightly raised, is entered at the aisle level. Adjacent rooms on the same level are so grouped that two can be thrown together en suite by day or night.

Budgette rooms have full-size premade beds with comfortable foam-rubber mattresses which can be moved into place or stowed away with ease by the passenger, or by the porter if desired. Each room has its toilet, wash basin, medicine cabinet, carafe, mirrors, and all necessary facilities and appointments for the traveller's comfort and convenience. Besides a comfortable day seat or chair they have unusually wide windows,

Railway Age-November 17, 1945

ample luggage space, modern lighting, and individually controlled air-conditioning and heating.

Cabin Car

To bridge the gap between the Budgette car and luxurious double bedroom and master room sleeping accommodations, designed by Budd, this company has developed an all-room sleeping car, known as the Cabin car, designed with 22 rooms arranged on opposite sides of a center aisle, all on one level, and intended to satisfy the need for individual day-and-night accommodations providing every possible comfort, at a nominal tariff for private occupancy.

The cabin-car beds, 6 ft. 4 in. long and 35 in. wide, are lowered into place and returned to their daytime positions electrically by simply turning a switch. The bed frames, on which the springs are mounted, are lightweight magnesium stampings, and the mattress 4-in. foam rubber. When the bed is in place for the night, a night table, a case for valuables and a combination bed and night light are conveniently located.

A deeply cushioned, wide, adjustable chair-type seat with large over-stuffed club-type arm rests and a curved head rest is provided for day occupancy. When the arm rests are folded, the seat is wide enough so two people may occupy it. The upholstery is foam rubber. A clothes closet, toilet and folding wash basin are fitted into the aisle wall of each room. The top of the toilet, arranged as a second seat, is upholstered to match the chair. The wash basin, of stainless steel, is operated by a finger bar in the handle.

Heated or cooled air is provided for ventilation through an overhead diffuser outlet. The amount of air is controlled by a damper, operated from the doorway by a knob. The temperature is controlled by heating and cooling thermostats. Floor-level air is circulated by a fan over a heating coil which eliminates the conventional radiator under the window.

General indirect illumination comes from a semi-circular fluorescent tube, concealed behind an overhead air-diffuser fixture. Secondary light is supplied by fluorescent tubes on either side of the mirror frame. Additional light for reading during dull days comes from a spotlight concealed in the center of the air diffuser fixture. A reading light, more suitable for use when the bed is

lowered, is located on the end wall at the head of the bed. A blue night light is concealed above the doorway to shine on the ceiling and indirectly light the room. Control of all lights is at a switch in the doorway.

The clothes locker is mounted in the aisle wall adjacent to the seat. The door has a spring hinge so it will not jam the operation of the bed. A shoe locker is in the doorway opposite the seat.

Baggage space is provided on the end wall opposite the seat. This is exceptionally deep and will accommodate a full-size suitcase. A locker with a spring-hinge door is located over the wash basin to contain a water carafe, glass and drinking cups. Below this is an alcove for toilet articles. An electric outlet is available for razors and curling irons.

A concealed door is supported by roller tracks at the top and two lateral rollers at the bottom which are concealed in the doorway, eliminating any lower door guide, which might accumulate dirt and jam in its action. A door brake holds the door in any desired position. A curtain attached to the outer face of the room is closed by a zipper.

The wainscoting portion of the room is covered with material which aids in sound deadening and gives a clean surface not easily scratched or marred. Above the wainscoating, the sides may be painted directly on the metal, or may be covered by simulated leather cemented over a thin layer of felt which in turn is cemented to the panel. Careful attention has been given throughout the entire car design to accessibility of all equipment in the interest of quick, low-cost servicing.

Dining Cars

Railway dining-car designs have also received intensive consideration. The floor-plan arrangement, announced by Pullman-Standard, embodies the new principle of diagonal seating and possesses the atmosphere and appointments of a fashionable club. The arrangement of this 42-seat car is designed to accelerate service, eliminate interruptions caused by arrivals and departures at the tables and enable waiters to step to the side when serving, thus keeping the aisle free at all times.

Other innovations include vibrationless tables, spot-ray illumination, linen storage at each table, inter-car telephone communication and tables uncluttered with water bottles and other service.

Tables and seats are set at a 45 deg. angle to the side of the car instead of at right angles to it as in ordinary diners. A speedier turnover is anticipated than in conventional diners accommodating 48.

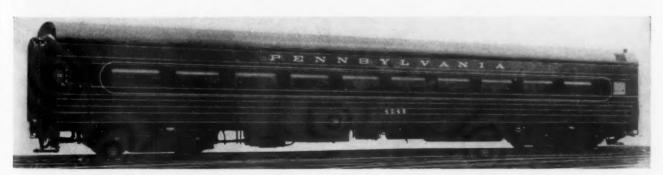
Tables serving four persons are square but have the same area as the rectangular tables in other diners. There are also two-place triangular tables. For safety, all corners and edges are rounded.

One of the greatest benefits accruing to the traveler from this seating arrangement will be unobstructed movement, each person being able to slip into his seat or leave the table without disturbing his neighbor. Each person will have a side of the table to himself and can enjoy a normal conversational position instead of knocking elbows as at ordinary diner tables, at the same time getting a view of the passing scene without turning his head. Moreover, waiters can step between the tables when serving and serve from the side instead of reaching over the person occupying the aisle seat as is necessary in conventional diners.

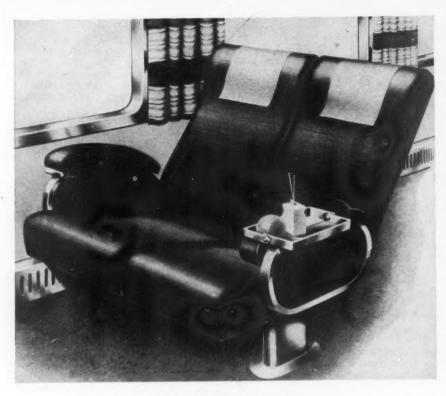
One reason service will be expedited in this diner is that changes of linen are to be stored in compartments They can be reached at each table. without disturbing passengers at the tables. Moreover, by keeping water bottles, creamers, sugar containers and menus on triangular shelves along the wall at the juncture of the diagonal seats, the waiter can supply these utensils when serving each table and immediately return them to the shelf, thus leaving maximum table space for the diners and further facilitating quick changes of linen.

Entertainment by means of radio or concealed phonograph, inter-car telephone communication and spot-ray illumination, with the surface of each table bathed with a cone of light of the proper intensity, all add to the new diner's clublike atmosphere.

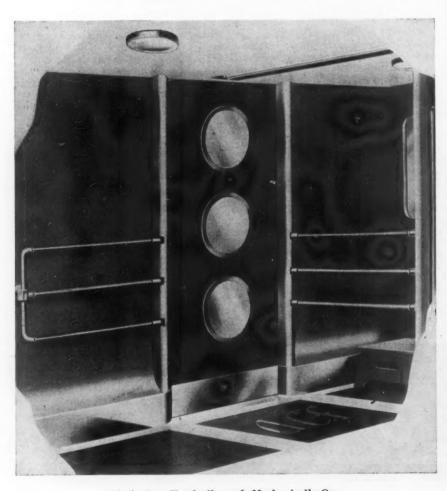
Plans for a 50-seat grill car and a de luxe, high-capacity cafeteria car, featuring economical self service and capable of serving two to three times as many passengers per day as conventional diners, have also been announced by Pullman-Standard. The cafeteria car design, incorporating many advances in comfort, convenience and efficiency,



One of the Modern Coaches Built by Pressed Steel for the Pennsylvania



A. C. F. Slumberliner Coach Seat with Folding Armtray



Swinging Handrails and Mechanically-Operated Vestibule Door of A. C. F. Design

seats 56, compared with 36 to 48 in typical diners, and utilizes the diagonal seating principle. Food of all kinds is supplied, including everything from soup to ice cream sodas, in attractive displays which afford passengers the opportunity of making a visual selection.

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of making a visual selection.

The extra seating capacity and the speedier turnover inherent in a self-service system will be beneficial to all passengers, especially during popular mealtime hours, and at intermediate periods if the car is kept in continuous operation for those who enjoy between-meal snacks. Moreover, many passengers traveling on small budgets who ordinarily would eat cold box lunches or snacks purchased from train vendors will have an opportunity to obtain hot foods consistent with their means.

The kitchen, steam tables and service counters in the center of this car are reminiscent of their counterparts in popular cafeterias. Equipment includes ranges for preparing hot dishes, steam tables for keeping them warm and a refrigerator for preserving perishables. At the end of this section, the designers have included a soda fountain which is available to supply this type of service when desired.

Astra Liner Designs

In connection with the Astra Liner coach, diner, sleeper and observation car which it is planned to have constructed according to General Motors designs and exhibited throughout the country, it cannot be questioned that these cars will do much to stimulate advanced thinking about spectacular new features of car design adapted to attract public interest and envision new possibilities of passenger comfort and enjoyment.

The most striking single feature of these cars is the steel-frame, glass-enclosed observation dome which is said to increase the height over present standard cars only 18 in. and be well within general clearance limitations. Experience with this type of construction in the Burlington's Vista-Dome car indicates enthusiastic approval by passengers who view the scenery from an exceptional vantage point and can watch the approaching roadway, operation of sig-nals, station work and other interesting railway activities in comfort and particularly in a quietness never before experienced in railway travel, on account of location of the dome above the level of most train noises.

It is obvious that maximum dome height above rails will be limited by clearances on individual roads; that full vision from the dome will be more or less proportionate to the ability to keep the dome glass clean; and that the dome construction will be most advantageous when the car is operated through scenic country during fair weather. Under all conditions, however, visibility in the dome is better than through conventional side windows and it is reported that riding comfortably in the dome, even through a storm, is a unique and, in some respects, thrilling experience.

The Astra coach design utilizes the dome to give increased seating capacity, or the space beneath the dome may be used for special facilities such as lounges, children's playroom in a women's car, or possibly family coach sections, comprising five reclining-seat private rooms for which a small extra charge would be made. In the Astra sleeper, the location of various compartments is shown in the accompanying drawing and space under the dome is utilized for two special rooms, each having two lower berths, one of them a conversion lounge located along the parti-tion opposite the window and the other folding into the end wall by day, giving room for two comfortable chairs next to the window.

The Astra Diners

Of the two new types of dining cars suggested by the General Motors designers, one has the same contour as the present steel roof cars and is distinguished by upper wall and rounded roof construction of the same Thermopane glass used in the Astra dome. The glass portion of the roof extends over the section of the diner occupied by tables. Plastic shades may be adjusted underneath the glass roof sections in case sun glare becomes objectionable. This gives the diner the characteristics of a fashionable out-of-doors cafe, or of a roof garden.

Two end tables may be removed and folded into slots in side walls, thus leaving a small space in which five or six couples may dance after dinner.

Linen storage space and partitions are so arranged at the kitchen end of the diner that waiting passengers may see the table seating situation without crowding into the aisle and getting in the way of waiters passing to and from the kitchen. A small service bar is located at one side of the entrance to the

table space. A cocktail-lounge waiting alcove, seating ten persons, is at the end of the diner opposite the kitchen.

The other diner, which is one of the four cars scheduled to be built, departs completely from conventional dining-car design. This car will have an Astra dome serving as part of the dining space. Tables will be located in both ends of the car and in the dome, while the kitchen will be located in the depressed central portion of the car underneath the dome. A service pantry will be adjacent to the kitchen toward one end of the car and on the regular car floor level.

In addition to its appeal as a highly unusual place in which to enjoy food, this car will have a number of practical operating advantages. It will seat at least ten more than the present diner and each person will have more elbow room. Service will be expedited by the service pantry arrangement. Whereas dining car waiters now go back into the kitchen for food, they will have their orders filled from the service pantry over a counter in the Astra diner. This counter is located in a passageway that runs along a car wall, giving easy access to the dining rooms in both ends of the car. The waiters serving the Astra dome will dispatch used dishes and receive food via a dumb waiter from the kitchen immediately below.

The proposed Astra lounge car is expected to prove an unusually interesting design. It has five levels: the regular car-floor level, a center ramp, a lower cocktail lounge, a rear-observation lounge and the Astra dome. This permits a fascinating array of attractive sights within the car itself, to say nothing of the enjoyment of moving into several totally different atmospheres by merely stepping around a gracefully curved corner or going up or down a few steps. The car has 75 comfortable places to sit, at least 40 of which are movable.

As in the Astra sleeper, the dome is in the roof approximately in the center of the car. It is equipped with 24 seats, as in the sleeping car. The seating may be varied. It has been suggested that in the lounge car it would be possible on transcontinental trains to equip the dome with fewer seats of chaise-longue style for sun bathing or a quiet nap.

The space beneath the dome is used as the lower-level cocktail bar. This space is given an intimate air by the short bar across one end, equipped with high seats; by high narrow windows, by the low ceiling and built-in nooks.

A more formal cocktail lounge is located on the regular car-floor level at the forward end of the car. This room is entered either from a door at the forward end of the car or by three steps that lead up out of the lower cocktail lounge. Lavish use of color and amusing cartoons feature the decoration in both of these rooms.

The observation lounge at the rear end of the car has a floor 18 in, higher than the regular car floor level. Windows are unusually wide and deep. The rear cockpit has only two small pillars to obstruct rear view and the sloping, rounded rear windows permit exceptional upward view. Most of the furniture in this room is movable, permitting passengers to form their own groups as in a private living room. The stairway to the Astra dome leads out of the observation lounge.

Other Special Cars

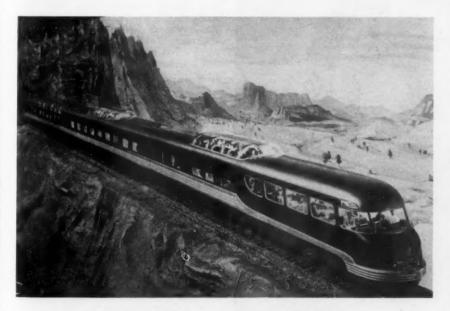
Practically every conceivable form of passenger service is offered in one or more of the special cars and accommodations proposed by various car builders. Possibly some of these never will be built, but they offer indisputable evidence of the originality and ingenuity of designers and promise to result in new standards of service in the railway passenger transportation field.

For example, special features of A. C. F. design provide for a snack bar in the diner and a small anteroom with cocktail bar for use while passengers are waiting for table service. A Junioroom is equipped to accommodate mother and child, or may be used as a private salon.

A service car is fully equipped to include a beauty salon, barber, telephone and stenographic service.

Coach and lounge-car designs, suggested by the Pressed Steel Car Company, are luxurious in appearance and appointments and present numerous features of special interest, such as horizontal flanges around the wide windows on lounge car exteriors to give a rich decorative effect, deflect light and diffuse it without glare into the car.

Other designs by Pullman-Standard for a living room car, recreation car with special provision for dancing and movies, casino car fully equipped with game rooms, and a children's play car indicate the extent to which designers have gone in an effort to anticipate all possible customer requirements in passenger cars of the future.



Scale Model (Right to Left) of General Motors Astra Liner Lounge, Sleeper and Dining Cars

Refinement of Existing Designs Will Produce Tomorrow's Power

What HAVE here the opportunity, for the first time in several years, to appraise the equipment with which passenger service is performed in the light of peacetime requirements, with the expectation of meeting those requirements out of the wealth of the experience gained during the high-pressure operation of the war years. As we look ahead in the matter of motive power for passenger service there does not appear to be any development of a decidedly radical nature on the immediate horizon—unless one can consider the steam turbine and the application of the gas turbine to locomotive use in that category.

The character of motive power in rail-road service is always directly related to the problems of operation. During the past four years there has hardly ever been a time when the operating departments had any more locomotive capacity than was needed for the job at hand. For once, in recent railroad history, the railroads had an opportunity to test out both theories and practices as applied to passenger trains of full car limits operating at high speeds. It may be well to venture the observation, at this point, that the passenger traffic volume of the

four years just past will represent the maximum with which operating departments will have to contend for some time to come. So, therefore, any idea that passenger motive power will have to be developed for hauling heavier trains faster beyond the train and speed limits of the present is a matter the consideration of which can be postponed for the moment.

Diesel Contribution

During the war years, when motive power was being utilized to limits far beyond the pre-war expectations of most railroad men the way to future improvements was actually being pointed out. The very process of trying to get more and more out of existing equipment served to amplify the shortcomings of the older equipment and the advantages of the new. The Diesel-electric locomotive made a remarkable contribution for the good of the railroads-it made them conscious of the value of utilization and the relation of trouble-free performance to maximum utilization, and of the real value of locomotive capacity, especially in economically flexible form.

In any discussion of the development of motive power it is always worthwhile to call attention to the fact that absorption in a study of engineering refinements of existing types may cause one to lose sight of a factor of paramount importance in railroad operation—that the job of a railroad is that of hauling tons of freight and thousands of passenger cars over varying distances and under all kinds of conditions, and doing it at a profit. It is of little value, in the overall picture, if engineering achievement results in a locomotive of substantially higher thermal efficiency if the cost of building, operating and maintaining such a power plant is such that its cost relationship to traffic shows up poorly.

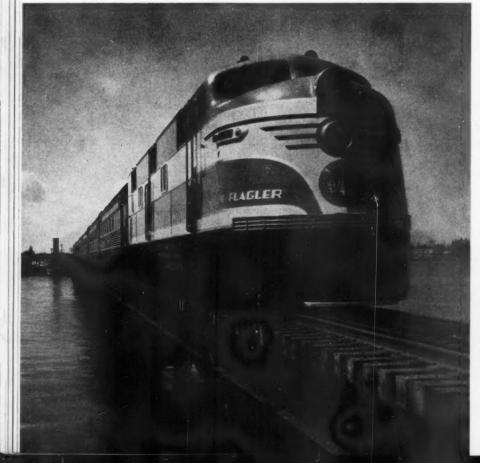
tionship to traffic shows up poorly.

The Diesel-electric and the modern steam locomotive have set performance records and cost records that are going to require real engineering development work to improve. The steam turbine, the turbine-electric and the gas-turbine locomotive have not only to compete with the improvements in existing motive power types that are sure to come but have to be developed in themselves to a point where they can take their place in the every-day job of railroading on a basis of favorable cost relationship. The decreasing first cost of the Dieselelectric is rapidly establishing the higher boundaries of initial investment and when the cost of operation on a passenger car-mile basis is considered it becomes immediately evident that no competing form of motive power that does not have all of the favorable operating and design characteristics that have made the Diesel-electric so popular with the operating department can afford to approach its first cost. The Dieselelectric has established many a comparison standard that will remain for some time to come.



Economic and operating considerations will, in the final analysis, dictate the type and quantity of motive power units that are required to handle the passenger traffic of a railroad. Whatever the decision may be on an individual railroad when the time comes to retire obsolete power and replace it with new there is this consolation from the railroad man's standpoint—the developments of the past few years have given him much to choose from, whether his needs be in the form of steam, Diesel or electric.

It may not be out of place, therefore, to include in this article the high spots with respect to design and performance of what are now recognized as the last word in passenger power.



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For many months and millions of miles of service the passenger Diesel has been represented by the 6,000-hp. locomotive, which can be used, as occasion demands, in 2,000-hp. units. This is the locomotive that has established performance records in all parts of the country and, on many roads, has meant the difference between the ability to handle the wartime traffic and failure to handle it. Without these Diesels it is difficult to imagine what the result might have been.

A Diesel-electric passenger locomotive of improved characteristics has recently been announced by the Electro-Motive Division of General Motors Corporation. The new 6,000-hp. locomotive will have top speeds of 95 m.p.h. with 1,500 hp. in a single engine in each of four cab units. The A units have an overall length of 50 ft. 8 in. and the B units 50 ft. 0 in. The weight of each unit is

230,000 lb., carried on four axles, giving an axle loading of 57,500 lb. per axle. All of the units will have standard coupler equipment at both ends of the cab making for maximum flexibility of operation.

Three other builders of Diesel-electric locomotives — Alco-General Electric, Baldwin-Westinghouse and Fairbanks-Morse—also have designs of locomotives in cab units of 1,500 and 2,000 hp. which will, no doubt, find their way into road passenger service.

Steam Locomotive Developments

Outstanding among the steam locomotives that have design characteristics which enable them to perform in a manner that makes them powerful factors in the competition between steam and other types of motive power are the Pennsylvania's T-1, the New York Central's

No. 6000, Class S-1a and the Norfolk & Western's Class I

Western's Class J.

The Class T-1, built by Baldwin in 1942, a 4-4-4-4 wheel arrangement equipped with poppet valves, was originally designed to haul a trailing load of 880 tons at a speed of 100 m.p.h. actual road tests they have exceeded this requirement, having hauled approxi-mately 1,000 tons at better than 100 m.p.h. On the test plant at Altoona, Pa., this locomotive developed 6,552 i.hp. at 86 m.p.h. The mechanical efficiency was above 90 per cent at all speeds and horsepower. At low and moderate horsepower ratings, the coal fired per draw-bar horsepower was below 2.5 lb. and from 5,500 to 6,000 drawbar horsepower the coal rate rose to about 3.5 lb. A maximum evaporation of 105,475 lb. of steam per hour was obtained at a firing rate of 23,000 lb. of dry coal per hour, corresponding to an evaporation rate of 25 lb. per sq. ft. of evaporative heating surface. These attainments, plus unusual riding qualities at high speeds with heavy loads, stamp this as a passenger locomotive of exceptional possibilities.

The New York Central No. 6000 is an evolution of the Class J and Class L locomotives which have turned in remarkable performances on that system for several years. The No. 6000, built by American Locomotive Works, is the first 4-8-4 in the New York Central inventory and is marked by emphasis on hoiler capacity and full roller bearing installation.

It is expected that this locomotive will develop not less than 6,000 i.hp. Worthy of mention is the tender with a nominal water capacity of 18,000 gal. and a coal capacity of 46 tons. These fuel and water capacities, in conjunction with track pans and 86 cu. ft. ash pans, combine to permit extended runs with-

Table I-Distribution of Passenger Locomotive Mileage-1936-1945

		Passenger Locomotiv	ve Miles (thousands)	
	Total	Steam	Electric	Diesel
1936 Per cent of total	371,858	355,375 95.5	15,213	1,269
Per cent of total	384,971	364,814 95.0	16,016	4,051
1938 Per cent of total	357,120	332,883 93.2	16,722	7,615
Per cent of total	357,339	329,308 92,2	17,556	10,476
Per cent of total	362,312	324,075 89.5	18,456 5.1	19,781
Per cent of total	380 269	329,411 86.6	20,053	30,805
Per cent of total	421,203	358,798 85.2	22,823	39,581
Per cent of total	465,908	400,225 85.9	24,688	40,995
Per cent of total	471,154	412,351 87.5	25,407 5.4	33,396
1944*	312,093	273,313 87.5	16,665	22,116
Per cent of total	311,064	268,260 86.0	16,752 5.4	26,052

*Eight months. Note: Data taken from I. C. C. Statement No. M-213. out intermediate stops for servicing.

High sustained horsepower-in excess of 5,000-together with mechanical facilities such as roller bearings and mechanical lubrication are features of the Norfolk & Western Class J locomotives that contribute to their ability to handle the heavy trains at relatively high speeds over the Allegheny mountain territory between Norfolk, Va., and Cincinnati, These locomotives are running about 850 miles between home terminal servicings and are averaging about 400 miles per day. The Class J locomotives have demonstrated their ability to run more than 250,000 miles between shoppings and from 2,500 to 3,000 miles per fire cleaning.

These are not by any means all of the modern locomotive designs that are making and breaking records in passenger service but they are typical of that which the mechanical officer has to choose from in new motive power. Before another year is over there will, no doubt, be steam or gas turbine designs far enough along so that one may get an idea of what is in store for the future. The Pennsylvania's geared turbine, built by Baldwin, is accumulating miles of service handling important main-line trains and the railroad world is looking forward to a report on its performance.

Analyzing Passenger Service

The two tables accompanying this article show the important data with respect to motive power assigned to passenger service. For a period of about four years the job of handling the passenger traffic of the country has fallen upon a total of approximately 6,900 locomotives, which, in the eight months of 1945, ran a total 311 million miles. This figure compares with 312 million for the same period of 1944 and a total of 471 million for the entire 12 months of 1944. It is interesting to note that this total, for 1944, is about 100 million locomotive-miles more than was run in the year 1936, at the end of which year there were 1,300 more locomotives assigned to passenger service than in 1944. A further study of the statistics of the two years shows what has taken place as a result of the necessity of handling wartime traffic.

In December, 1936, there were 6,240 passenger locomotives on the active list representing 75.7 per cent of the total locomotives assigned, whereas in December, 1944, the job was done with 6,031 locomotives representing 87.7 per cent of the ownership of that type of power. There were, however, only 720 as compared with 1,492 locomotives in an unserviceable condition and only 126 as compared with 500 in storage.

These figures reflect, as has been pointed out many times before, the excellent job that was done by shops and enginehouses in maintaining and servicing power and making it available for service in the shortest possible time and, also, the change in the policies as regards utilization—everything that would run was on the road in revenue service. These conditions resulted in raising the

average number of miles run by all passenger locomotives per day from 127.0 in December, 1936, to 231.2 in December, 1944. This latter figure was an all-time high up to that time but has since been exceeded by the August, 1945, average of 231.7 miles per locomotive-day. Here, again, it must be pointed out that these averages are deceiving. They are of value principally in indicating trends rather than performances, for in individual cases steam locomotives have been known to average as much as 800 miles per day on some runs and Diesels have turned in averages of between 1,000 and 1,100 miles a day.

No person conversant with the use of passenger motive power will deny the influence of modern power within the past 10 years on the increases in average performance. In 1936, 95.5 per cent of the passenger mileage made by locomotives was made by steam power and only 0.4 per cent made by Diesel-elec-In the eight months of 1945 the total locomotive mileage made by steam had dropped, on a percentage basis, to 86.0, with 8.4 and 5.4 per cent handled by Diesel-electric and electric locomotives, respectively. The great increases in daily mileage made by the Dieselelectric, the electric and the really modern steam units-representing probably from 10 to 15 per cent of the steam inventory—was the factor that was responsible for raising the daily averages. In August, 1945, the total of 6,865 locomotives assigned to passenger service was made up of 6,321 steam units, 254 Diesel-electric and 290 electric. It is reasonably safe to assume that not over 1,400 locomotives, representing about 20 per cent of the total inventory assigned to passenger service, may be considered as being sufficiently modern in design to be an important influence on the over-all performance of motive

In the matter of the movements of

motive power and equipment the job of handling passenger traffic in the eightmonth periods of 1945 and 1944 were practically the same. Locomotive miles were 312 million as compared with 311 million; train-miles were 286.7 million in 1945 as compared with 286.1 in 1944; passenger car-miles were 2,963 million in 1945 and 2,933 million in 1944. Once again averages to be derived from these statistics are interesting as indicators of trends. The average number of passenger cars per train increased from 7.3 in 1929 to 8.0 in 1939 and to 8.9 in 1942. In the statistics for 1945 we are able. for the first time, to get a break-down between trains handled by different types of motive power and we find that the average number of cars per train, for the eight months of this year, is 10.1 for steam-powered trains, 11.3 for the Diesel-powered and 11.5 for the electric.

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Helper Mileage

The average of 1.07 locomotive-miles per train-mile, for all three types of motive power, is indicative of the limited extent to which helper locomotives are used in passenger service. To those who would analyze the statistics it may be worthwhile to call attention here to the fact that probably a substantial proportion of the helper mileage on Dieseloperated trains may be steam mileage and it has now been suggested that the operating forms be revised in such manner as to show, in detail, the locomotive miles broken down between principal, helper and light for each individual type of power. This is also an important of power. matter in relation to train-mile cost data, for where steam locomotives are used on specific runs or in combination with Diesel-electric locomotives the motive power cost per train-mile may appear distorted until a detailed analysis is made.

Per cent

Table II-Statistics of Motive Power Assigned to Passenger Service

	Total locos.	Activ		Unserv- iceable	Stored	to total	а	per day
August, 1934 December, 1936 July, 1937 January, 1938 July, 1939 December, 1940 December, 1941 December, 1942 December, 1943	9,424 8,678 8,232 8,114 8,200 7,730 7,312 7,061 6,758 6,872	6,783 5,848 6,240 6,121 5,797 5,398 5,570 5,797 5,949 6,050		2,461 2,183 1,492 1,564 1,743 1,859 1,417 936 665 711	972 647 500 429 660 473 325 328 144 111	72.0 67.5 75.7 75.5 70.8 69.9 76.0 82.0 87.2 88.0		167.0 126.7 127.0 178.7 171.7 186.4 203.4 206.3 226.0 229.3
1944								
January February March April May June July August September October November December	6,857 6,810 6,811 6,813 6,782 6,782 6,790 6,760 6,740 6,749 6,748 6,877	5,868 5,774 5,858 5,810 5,723 5,839 5,763 5,763 5,765 5,007 5,675 6,031		866 936 858 886 921 834 863 867 859 913 925 720	123 100 95 117 138 136 158 130 146 129 148 126	85.7 84.8 86.1 85.2 84.3 85.7 85.0 85.1 85.0 84.1 87.8		214.5 221.6 225.9 224.6 219.6 222.2 221.8 222.6 225.2 225.6 226.2 231.2
1945								
January February March April May June July August	6,908 6,847 6,819 6,810 6,769 6,780 6,814 6,865	5,879 5,756 5,670 5,722 5,664 5,749 5,734 5,775		914 960 919 934 957 897 958 943	115 131 140 154 148 134 122 147	84.8 84.2 83.1 83.8 83.7 84.8 84.0		216.9 217.4 216.0 216.5 223.4 228.5 227.8 231.7
Note: Data taken from	I. C. C.	Passenger	Train	Performance	Statistics.	Statements	No.	M-240.

Note: Data taken from I. C. C. Passenger Train Performance Statistics, Statements No. M-240

Training Employees in Tactful Behavior

Most railroads publicize courtesy among employees as in their own interest, and are providing concrete instruction in how to handle specific contact problems

TREATMENT of the traveling public in a manner which will make them like the railroads and want to travel by rail again requires something more than just a desire by employees to be courteous and friendly. The will to be friendly must come first, of course, because, unless the employee has some desire to that end, he will be unable to use even the most simple technique. A familiar anecdote from the hotel industry illustrates the point. A new bell boy was being instructed by the assistant manager as to his behavior in certain common situations.

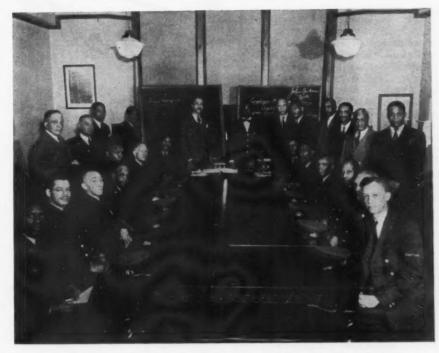
"What," asked the manager, "if you should inadvertently intrude upon a woman guest in negligee?"

"I should withdraw, saying 'Pardon me, Madame,'" answered the bell boy.
"Wrong!" the assistant manager said,
"You should say, 'Pardon me, sir.'"

Perhaps the reply here suggested as an effort in the direction of tact might not actually achieve its purpose, but, anyhow, the story illustrates the difference between just plain, unimaginative courtesy—and courtesy combined with the tact which puts the customer completely at ease. Courtesy requires not only a positive effort, but a disciplined and educated one—as well, in order to avoid the excesses which Westbrook Pegler has criticized as "hand-holding and baby-kissing" (Railway Age, October 20, page 646).

Practically all railroads which handle passenger traffic in any volume have, for some years—by posters, circular, articles in employee magazines, and otherwise—been urging their employees to deal courteously and thoughtfully with the traveling public. Some railroads have gone much further than this and have issued pamphlet literature, some of it interesting and amusing (for example, see the article on the Burlington's program to this end in Railway Age, July 21, page 99), in which is promoted not only the general idea of courtesy but a definite technique for achieving it.

Still other railroads, by means of "public relations" training courses, educational movies, and the employment of skilled instructors (e.g., "traveling conductors"), have been teaching employees the importance to their future job-secu-



A Group of Red Caps at Grand Central Terminal, N. Y. Who Are Students in a N. Y. Central "Public Relations" Course

rity of making friends with the traveling public, and are spreading among employees a knowledge of practical methods for attaining this objective.

Prior even to refinements in courtesy, of course, comes competence by employees in the performance of their jobsnot always an easy attainment in a period when so many employees are new and inexperienced. To assure this competence, many railroads have provided definite training programs which new employees-ticket sellers and information clerks, for example-are required to master before being entrusted to positions where they come into contact with the public. Post-employment training programs (e.g., for dining car employees) have been instituted by a number of railroads, in order to improve service to patrons-in cleanliness, in efficiency, and in general acceptability.

Employees Cooperative

In every instance, employee cooperation in these objectives is bespoken, not as a contribution from them to the advancement of the selfish interests of the owners of the railroad, but as a means of assuring to the railroad a volume of post-war traffic sufficiently large to maximize the security of jobs of railroad employees. Realization is widespread among employees and union officers that success in winning friends for railroad service among the traveling public is as much in the employee's interest as in

that of the railroad company—as witness the following statement by W. F. Donoghue, general chairman for the Brotherhood of Railroad Trainmen on the New Haven, in "Along the Line," that company's employee magazine:

'A passenger may ride on our trains for fifty years and never have occasion to meet a single one of our officials, but he's bound to meet the conductor or the ticket collector or the trainman-and right there is both a challenge and an opportunity. It is a challenege to us to make sure that the passenger receives a good impression of every member of the Brotherhood of Railroad Trainmen that he meets. It is our opportunity to help make him like our service so well that he will want to ride with us again. . . . We of the railroads have our work cut out for us to keep passengers from slipping right back into the automobile-riding habit, and to persuade others to stay on the rail instead of taking to the air.

Perfection, of course, is a long way from attainment. Even on some railroads where effort along these lines has been most intensive, there are "blind spots," which only patient case-by-case correction as time passes will ever wholly remedy. Furthermore, while some railroads have carried public-contact training almost as far as any "outside" corporation has done—there are still many thousands of employees, viewed from the standpoint of the industry as a whole, who have never had any formal instruction in the proper handling of the public. It will take years of unremit-

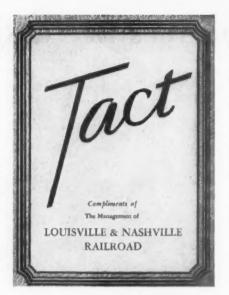
ting effort, and building upon existing achievements, before the railroad industry can say that all its employees who have public contacts have been thoroughly schooled in skillful dealing with them.

It will be highly helpful if railroads which have made most progress in this direction, and employees who have received this instruction, will act as "missionaries" among other railroads and employees who have not yet been illumined in this department. Such apostleship is quite in keeping with the best interests of the apostles themselves because, the fact is, a large proportion of the traveling public makes little distinction among individual railroads-the industry to them is one entity, "the rail-roads"; and the good effect of perfect treatment by employees on a half-dozen big railroads may be utterly destroyed by the ill-nature or clumsiness of some single employee on a relatively unimportant railroad. Tactful courtesy by its nature is usually a rather unobtrusive virtue, a very large measure of which is quickly dispelled by a single act of positive rudeness—and, when that happens, it is not unusual for the approbrium to fall upon the entire railroad industry and all railroad employees.

Disturbing Figures

The industry and its employees may be proud of their recent spectacular advancement in systematic attainment of a more satisfactory relationship with their customers—but, in their own interest, they may be well advised to remain profoundly dissatisfied with their accomplishment, until tactless and unfriendly treatment of a railroad patron becomes as rare an occurrence as, for instance, it is with patrons of the Bell telephone system, which of all large public-service enterprises has probably been working longer and more thoroughly than any other in the achievement of friendly customer relationships.

How the railroads and their employees stand in popular esteem is not a



The I. & N. Has Distributed Many Booklets by Able Writers

question requiring speculation. Scientific public opinion research, conducted for the Association of American Railroads, shows that 14 per cent of persons who had traveled recently (at the time when the check was made, last July) were critical of the treatment they had received at the hands of railroad employees. In 1944 this percentage was 10, in 1943 it was 9, and in 1942 it was 8. Moreover, of recent travelers, this year, 41 per cent believed that railroad employees were currently less accommodating than they were a year or two ago. There is, thus, no doubt whatever of the need for the effort the railroads are putting forth to improve performance in this sector. Some of the specific programs and accomplishments of individual railroads (not a complete list by any means) along the line of training for effective dealing with the traveling public are outlined below.

The New York Central was the pioneer in the establishment of "public re-

lations" training courses for employees. Organized originally as a war-time instruction program, the state of New York provided teachers for the initial courses-but mature employees who took the course soon qualified as instructors and, by the process of making teachers of a considerable percentage of all those who have taken the course, it has been possible to make the program systemwide. More than 25,000 of the company's employees have taken advantage of this training, which consists of six two-hour sessions, conducted in roundtable style. The advantages and disadvantages of railroad employment are discussed, and means of improving conditions lead naturally into questions of providing a more attractive service to patrons. As has been briefly reported in these pages (e.g., page 76 in the issue of July 8, 1944), the instructors act rather as discussion-leaders than as lecturers. There is nothing of the formal classroom in the program, and questions raised by the employees themselves constitute the basis of the instruction.

Special Training Classes

The Southern Pacific has just got well under way a specialized program of training for public-contact employees, which is a part of the complete management plan of public and employee relations reported in an article in Railway Age of June 23. The new intensive training for public-contact employees embraces two methods, viz., conference groups meeting under the leadership of professional outside conference leaders, and a program of educational films. The approach is the self-interest of the employee, the first standardized conference being entitled "Why Courtesy Pays," The second conference of the course is on salesmanship, showing that every contact employee is essentially a salesman. Other conference titles are "Study in Personality," "Tact and Diplomacy," "Our Friendly Railroad." The company has in production two sound-slide films entitled "Serving the Passenger" and "Serving the Shipper." A forty-minute morale-building movie entitled "This Is My Railroad" is also contemplated.

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Another railroad which has initiated "public relations" courses is the New Haven, which reports that the "rate of employee participation in the program is to be stepped up in the near future." On the Erie, since 1938, representatives of the passenger traffic and auditing departments, in cooperation with the operating supervision, have conducted training conferences for passenger conductors, collectors and trainmen. These conferences, held at division points, are well attended and have three major objectives:

1. A review of the manual of instructions relating to handling of transportation and preparation of reports, stressing new or revised procedures introduced during the year, looking to improved knowledge of duties and efficiency in performance to avoid errors

HISSOURI PACIFIC LINES

COURTESY-GRAM



ST.LOUIS.MO. AUGUST 19, 1944

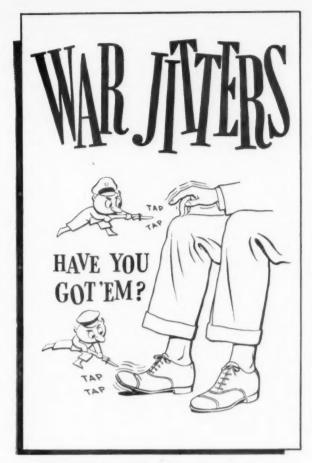
MR. R. E. ANDERSON. 611 OLIVE ST.,

ST. LOUIS, MO.

THANKS FOR YOUR RESPONSE TO SUGGESTION TO SPECIALIZE IN COURTESY.
INCREASING NUMBER OF LETTERS FROM PLEASED PATRONS SHOW OUR INDIVIDUAL
EFFORTS ARE PRODUCING SPLENDID RESULTS. LET US CONSTANTLY REMEMBER
THAT "THE BUSINESS HARVEST OF TOMORROW WILL DEPEND UPON THE SEEDS OF
COURTESY SOWN TODAY". KEEP UP THE GOOD WORK!

L. W. BALDWIN

Employees Who Wrote to Mr, Baldwin in Reply to One of His Courtesy Letters Received an Acknowledgment in the Form of a Telegram of "Jumbo" Size



The Milwaukee Has Made a Specialty of Good-Humored and Interesting Booklets That a Recipient Can Hardly Keep from Reading

and resultant inconvenience to passengers.

2. Presentation of subjects pertinent to favorable public relations. Distribution of leaflets or other literature encouraging a constant high standard of courteous, friendly, helpful service to all travelers.

3. To discuss common problems, encourage suggestions, and maintain personal contact between the "general office" and train service personnel who are a most important front-line contact with the public.

During the war years these conferences have dealt with specific problems incident to the greatly increased volume of travel. Building of public good-will and the rendering of courteous service, under the stress of war-time conditions, has been a major subject on the program.

Program to Expand

Ticket agents, reservation and information clerks, and baggage agents have attended training conferences. Open forum discussions of current problems were held, and passenger traffic representatives have presented procedures calculated to improve station and ticket office service. Here again, the importance of improved public relations has been

stressed. Likewise, dining car personnel has benefited from attendance at similar conferences. An expanded program of training and cooperative discussions is planned for 1946. The Boston & Maine is providing a wide variety of training courses for employees through the leadership of the Railroad Y. M. C. A. Several railroads have made a special

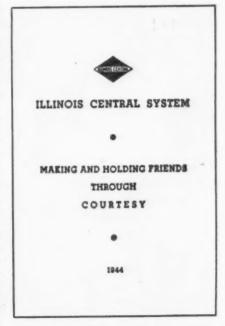
effort to inculcate lessons of thoughtful and considerate treatment of the public by the dissemination of interesting illustrated literature to employees. Mention has already been made, in this connection, of the Burlington. The Illinois Central was a pioneer in this effort by its issuance of a complete "courtesy manual." The Milwaukee has issued a number of pieces of such educational pamphlet matter-cleverly illustrated with cartoons, which are amusing and interesting independently of the lesson they have to impart. The New York Central has published a semi-humorous brochure of this type, entitled "Company Manners." The Pennsylvania has distributed quite a series of typographically attractive instructional leaflets showing the "right way" and the "wrong way" of handling typical public-contact situations. The Louisville & Nashville has circulated large quantities of such books as Dale Carnegie's "How to Make Friends and Influence People," and has published a brochure of its own on proper telephone technique, as have a large number of other railroads. The Katy has recently distributed among employees a circular publicizing favorable comments from patrons.

On a few railroads, training in courtesy and otherwise effective service to the public is a program of long standing, and recent activities in this direction represent the natural development of long-established procedures rather than innovation. One such road is the Missouri Pacific, which prides itself on having been designated "the most courteous railroad" in an opinion survey published last December by the magazine, "American Business." For more than 20 years this railroad has kept a large proportion of its employees "courtesy-minded" through the medium of its "booster clubs," which are primarily social organizations but which also serve to foster other concerns of common interest to both the management and emplovees.

Letters to Employees' Homes

President Baldwin keeps a file of the home addresses of employees who make public contacts and to them he sends letters and printed matter which offer guidance in perfecting themselves in the performance of this duty. Many of these letters elicit replies from employees and, as an acknowledgment to a particularly helpful batch of constructive letters of this type a simulated telegram—but of "jumbo" size—was sent to all writers.

When the company won the "American Business" designation as the "most courteous railroad," employees received a personalized mailing piece—each one designating the employee by name—from the general passenger traffic man-



The I. C.'s "Courtesy Manual" Was One of the Earliest Efforts of Its Kind and Is Still a Model of Thoroughness

ager, which showed a four-leaf clover with the message, "It took more than good luck, Mr. -At no time are employees "preached at" in the Missouri Pacific program. The top management's policy is that courtesy begins with management: "A division officer can't consistently reprimand an employee for lacking in courtesy if he himself has been abrupt and inconsiderate in the way he issues instructions."

Commendation

The company makes a point, too, of seeing to it that, when a patron commends an employee, that fact is made known to the employee, with an expression of appreciation from the management. The Canadian National also makes a special point of commending employees whose attentiveness draws patrons' praise. Instead of having this commendation made in a formal way from top management, C. N. R. practice is to pass down the company's thanks "through channels," so that it reaches the employee personally from the officer to whom he directly reports; the employee knowing, of course, that the com-mendation has been relayed from the head office.

The Illinois Central is another rails road on which a program of improved employee relations through the medium of "service clubs" is an institution of long standing. Practically all employees are members of these clubs, the programs of which emphasize improved service to patrons. Other items in the Illinois Central's program for promoting employee alertness to improved relations with the public include (1) its program of selection of new employees, (2) training courses for new employees and "refresher" instruction for those already on the payroll, (3) schools for supervisors, (4) a suggestion system, (5) the previously-mentioned "courtesy manual," and (6) its supervisors clubs-one on each division. Still other Illinois Central activities which promote the program are its long-established program of institutional advertising (see Railway Age, November 3, page 723), frequent messages to employees from the president and other officers, and the stimulus afforded to courtesy through the pages of the system's employee magazine.

Reliance upon the employee magazine as a medium for increasing employattentiveness to improving their public contacts is general among the railroads. Two carriers—the Texas & Pacific and the Chicago & North Western-have recently established employee magazines with the purpose of fostering better employee relations, with more satisfactory public contacts as a parallel objective. The Norfolk & Western Magazine has for a considerable period been publishing in each issue a series of short, interesting articles under the heading "Courtesy Pays." This road, also, for many years had held local and system-wide "better service" meetings in which employees participate. Boston & Maine, in the pages of its employees' publication, regularly promotes courtesy-not alone by articles but by skillful and amusing cartoons.

Suggestion Programs

Many railroads have succeeded in stimulating employee interest in improved service by means of their organized suggestion systems, whereby employees who make proposals for im-

proved service are suitably rewarded in cash. The Pennsylvania reports that its "bureau of new ideas," since its incep-tion in 1927, had up to the end of 1944 received 16,585 suggestions for improved service, of which 26 per cent had been adopted. The Boston & Maine, Illinois Central and Louisville & Nashville are among the other railroads which believe that their suggestion systems have been helpful in stimulating the interest and understanding of employees in improved dealings with the public.

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Railway

Courtesy Alone Isn't Enough

Bearing in mind that a courteous employee is not of much help to an organization if he does not know his job, many, and perhaps indeed most, of the railroads have made special efforts to instruct both new and old employees in the proper performance of their duties. Southern Pacific explains its approach to this problem as follows:

"In the days before our preparedness and war activities, the training of new passenger department employees was not a major problem. Employees were taken into our ticket offices and service bureaus in minor capacities, such as messengers or junior clerks; and, as the turnover was comparatively light, ample opportunity was afforded them to acquire sufficient knowledge of the next higher-rated job before they moved on to that job. In our service bureaus at San Francisco and Los Angeles we did have a limited number of student positions, and beginners were placed in these positions at a rate of pay lower than the regular information clerk positions. These rates were gradually increased over a period of twenty-one months, until eventually the student was a full-fledged information clerk and received regular rates of pay.

"The loss of personnel to the armed forces and other essential industries changed the picture completely and we found it necessary to adopt other means of quickly training employees to perform properly the functions of ticket clerks and information clerks. In most cases, the young people we were able to hire for such positions were without previous railroad or other transportation experience, and this made it necessary that we train them from the ground up, not only as regards our fares and services, but also as concerns proper procedure and tact in transacting business with our

patrons.

"One of our first efforts to select proper material for training as information and ticket clerks was a public class conducted by one of our junior officers during evening hours. Enrollees for during evening hours. Enrollees for this class were obtained by newspaper advertisements and other media, and instructions in tariff interpretation, construction of fares, preparation of itineraries, etc., were given in lecture form. While results were in some respects highly satisfactory, in other cases they were not so good. We were required to process a large number of people to obtain a small number of 'graduates,' who we felt possessed all the qualifica-tions required to enter our service and



Dining Car Waiters on the C. N. R. Are Given Detailed Coaching by a Veteran Steward

make satisfactory progress thereafter. "We then adopted a somewhat different plan, which is still in effect and which has proven quite satisfactory. Under this latter plan applicants for positions are 'screened' and only those who seem to possess proper qualifications are accepted for entrance to our student classes. These student classes are held to rather a small enrollment (not over twelve) so as to give the greatest benefit from close personal contact between instructor and pupils. Classes are conducted during regular office hours and the students receive pay while attending. All phases of our ticket selling and information work are covered. Students are generally qualified to accept positions on the telephone information desk at the end of about eight days of instruction. The course for ticket clerks requires approximately one month. Each class is in charge of an instructor who has had long experience in the work covered, selected not only for his knowledge of the work but also for his ability to impart such knowledge to the students. Classes include instruction not only in the mechanics of the work but also in such related and fully as important matters as tact and courtesy in dealing with our patrons, either over the counter or by telephone, including proper voice modulation, making of change and other matters pertaining to the handling of cash, personal appearance, etc."

Dining Car Employees

A number of railroads have recently made arrangements for instruction of their dining car employees (see Railway Age, August 11, page 257) in the proper care, preparation and serving of food. The Pennsylvania has in process a 30-minute color motion picture on the same subject, to be shown to all dining car employees. The same road has operated schools for ticket sellers at various places on its system, which includes the presentation of a slide film, with comment by a lecturer, offering instruction in the proper handling of telephone calls, in courtesy, as well as in some of the mechanics of ticket handling. The New York Central, and many other roads as well, has provided instruction for ticket sellers; and the resulting efficiency of some of these new employees, especially some of the women, has brought wide commendation from the traveling public. The Seaboard Air Line is another carrier which has put large dependence upon formal instruction of new employees in their duties, with favorable re-

The educational functions of supervising officers are stressed by the Canadian National in its program for improved service to the traveling public. A special effort is made in selecting ticket sellers, not only from among "outside" applicants, but in transferring employees from other jobs to this one, where they demonstrate special aptitude for the work. Train conductors are instructed in technical details regarding tickets and fares by highly-qualified supervisors,

and dining car employees are kept upto-date in the proper manner of doing their work by traveling chefs. The company makes a special point of seeing to it that employees are "plainly, clearly and sincerely commended for good work"—not only when this is reported by patrons, but when it is observed by supervisors.

Schools for the training or "up-grading" of employees are such a general institution that it is impossible to mention more than a few of them. The "training-within-industry" program has been widely used, among other railroads, by the New Haven, which reports that this program will be "stepped-up in the near future." This road also reports that arrangements are being made to provide courses in typing and stenography for the "up-grading" of clerks; and that apprenticeship courses are being established for veterans under conditions which will permit them to receive student allowances under the "G. I. Bill of Rights" while pursuing such courses.

Mention has already been made of the "traveling conductor" method of instructing train crews in the tactful treatment of the traveling public (see Railway Age, September 19, 1942, page 442). The Alton some eighteen months ago assigned an experienced passenger traffic solicitor to work with its passenger train crews, especially to train them in the most tactful approach to be followed in collecting tickets. The Union Pacific has recently promoted a passen-ger conductor to the position of "courtesy director"-to work among passenger train crews, ticket sellers and all other employees who have contacts with the traveling public. The New York Central has recently employed a number of alert women and has trained them as passenger representatives to ride its Empire State Express, to see to the comfort and answer the questions of passengers, especially those which may arise about the sights along the way through the interesting countryside where this famous daylight train is oper-

The Feminine View

For the past nine years the Burlington has had the services of a woman supervisor of passenger train service. who seeks to be helpful to public-contact employees in their relations with the traveling public, but without issuing any direct orders to these employees. Burlington is pleased, also, with the success of its school for dining car employees where instruction is given in approved methods of serving, food hygiene and in dealing with patrons. The Burlington believes this school has not only improved its service, but that it has also reduced the turnover among dining car employees, enlarging the ratio of experienced employees in this service. On the Fort Worth & Denver City, the general passenger agent makes a point of holding meetings of conductors once or twice yearly where he discusses informally with them some of the problems they face in their public contacts.

In addition to other literature inculcating lessons of courtesy, a number of railroads have utilized posters with telling effect. All persons who have traveled in recent years are familiar with the effective series the Pullman Company has displayed in its cars with this object in view; and the Atlantic Coast Line has recently widely distributed on its lines an attractive poster bearing the heading, "With Courtesy to All." Many railroads are using motion pictures and slide-films as an effective educational device, as has already been reported in the foregoing. The Denver & Rio Grande Western has recently completed a film entitled "Write Your Own Ticket," which portrays actual scenes of its passenger service, illustrating courteous contacts between employees and travelers.

Programs Will Grow

Lest anyone suspect that such extensive efforts as those here reported, to improve the quality of employee relations with the traveling public, are a mere temporary expedient forced upon the railroads by war-time conditions it can be definitely denied that this is so. On the contrary, the railroads' plans for instruction and other promotional efforts in this direction may be expected to increase rather than diminish. For example, the Jersey Central reports that it is at work on a program to provide "public relations" training for all employees having public contacts, and hopes to be able to use sound-slide films as a device to this end. The Pennsylvania expects that its training program will be augmented as conditions ap-proach more nearly to normal. The Frisco has a project of this kind under study which, perhaps, may be inaugurated along with its new streamline trains. The Texas & Pacific's view is that it is "just getting under way" with its effort in this direction, and the Missouri Pacific reports that its new research bureau is "now making plans for the expansion of every phase of our fu-ture employee training programs."

The foregoing account neglects to make specific mention of major efforts in the direction of promoting more skillful employee treatment of the public by quite a number of railroads whose progress in this direction has been outstandingan omission which space limitations and, in a few instances, the absence of documentary evidence at the time of writing made necessary. The cataloging of every effort by every railroad in this important cause would require more pages than could be spared for the purpose. The instances given are suffi-ciently representative, however, to describe the general lines within which the program is being conducted and to justify the conclusion that the impetus to more attentive and more thoughtful treatment of passengers is sufficiently strong and general to constitute a major "movement" within the railroad industry-quite as marked as that toward the acquisition of modern streamlined trains and the acceleration of service. Keep 'em rolling!



This Was the Last New Streamliner, Placed in Service Three Years Ago—It Soon Will Be Joined by an Unprecedented Number of New Streamliners Operating Throughout the Country

The Streamliners Have Done a War Job

Modern trains have accomplished more than their proportionate share in handling the swollen traffic

THROUGHOUT the war, the modern lightweight streamliners of the country maintained a record of handling a vast volume of passenger traffic. As a matter of fact, revenues of over \$10 per train mile were by no means uncommon for these trains. Their popularity increased, if anything, over the enthusiastic reception which had greeted them from the time the first one was introduced in 1934. That railway executives are by no means unaware of this is indicated by the number of orders for such trains that were placed as soon as passenger cars could be built, as listed elsewhere in this issue.

A few changes occurred in streamliner operation during the year, which are recorded in the appended list. The most important of these was the inauguration of through streamliner service on the Rock Island, between Minneapolis-St. Paul and Houston. Previous services had been operated over all of this route, but a re-arrangement of schedules and equipment permitted the operation of a through streamliner over the entire 1,370-mile route.

This list of streamliners has remained practically static—because of the prohibition on passenger car building—for some years past. Judging from actual

and potential orders, however, the prediction may be made confidently that this is the last time such a list, however condensed, may be kept within the confines of one page.

It should be noted that the following list of trains includes only those which, at their inception, consisted entirely of lightweight new equipment. There are, of course, a large number of rebuilt streamlined trains, operating with so-called standard equipment that has been refurbished. Such trains, too, have accomplished remarkable results in assisting in handling the war-time passenger traffic.

The Nation's Streamliners

Railway	No. of Trains	Name of Train	Normal Consist	Placed in Service	Operated Between	Milea Per Tr
		Abraham Lincoln	12	7-1-35	Chicago-St. Louis	568
	1	Ann Rutledge	12	7-26-37	Chicago-St. Louis	568
A. T. & S. F	. 2	Super Chief	12	2-22-38 (a)	Chicago-Los Angeles	636 743
	6	Chief	13 14	2-22-38 (a) 4-17-38	Chicago-Los Angeles Chicago-Oklahoma	851
	2	Kansas Cityan Tulsan	6	12-10-39	Kansas City-Tulsa	512
	2	Golden Gate	7	7-1-38	Oakland-Bakersfield	626
	2	San Diegan	13	3-27-38	Los Angeles-San Diego	512
	2	El Capitan	12	2-22-38	Chicago-Los Angeles	636
L. C. LF. E. C	. 3	Champion	14	12-1-39	New York-Miami	700
					(PennaR. F. & P A. C. LF. E. C.)	
3. & MMe. C	1	Mountaineer (b)	3	4-1-35	Boston-Littleton-Bethlehem	386
C. & E. I.	. 1	Dixie Flagler	7	12-17-40	Chicago-Miami	970
					(C. & E. IL. & NN. C. & St. LA. B. & CA. C. L F. E. C.)	
C. & N. W	. 2	Twin Cities 400	13	9-24-39 (a)	Chicago-Minneapolis	419
A 44. W	1	Minnesota 400	5	1-8-42 (a)	Wyeville-Mankato	434
	1	Peninsula 400	13	1-8-42	Chicago-Ishpeming	775
	1	Shoreland 400	7	1-8-42	Chicago-Green Bay	585
S & M W II D	1	Capitol 400 City of Portland	13	1-8-42 6-6-35	Chicago-Madison Chicago-Portland	651 805
C. & N. WU. P	. 2	City of Los Angeles	14	12-27-37	Chicago-Los Angeles	904
	2	City of Denver	11	6-18-36	Chicago-Denver	1,048
2. & N. WU. PS. P	. 2	City of San Francisco	14	6-14-36	Chicago-Oakland	961
(See also C. R. I. & P.)	. 1	Pioneer Zephyr	4	11-11-34	Lincoln-McCook	456
(See also C. R. I. & P.)		Mark Twain Zephyr	3	10-28-35	St. Louis-Burlington	442
	2	Denver Zephyr	12	11-8-36	Chicago-Denver	1,037
	2	Twin Zephyr	9	12-18-36	Chicago-Minneapolis	874
	1	Silver Streak Zephyr	4	4-15-40	Lincoln-Kansas City	502
	1	Ak-Sar-Ben Zephyr	8	12-11-40	Lincoln-Chicago	551
	1	Advance Flyer	6	2-2-41	Chicago-Lincoln	551
	2	Texas Zephyr	12	6-2-40	Denver-Dallas	832
C. B. & QC. R. I. & P	. 2	Zephyr Rocket	7	1-7-41	St. Louis-Minneapolis	585
	1	Sam Houston Zephyr	5	10-1-36	Houston-Ft. Worth	566
M. St. P. & P		Afternoon Hiawatha	12	5-29-35	Chicago-Minneapolis	421
	2	Morning Hiawatha	12	1-21-39	Chicago-Minneapolis	421
	2	Midwest Hiawatha	10	12-11-40	Chicago-Omaha (c)	488
C. R. I. & P		Rocky Mountain Rocket	9	11-12-39	Chicago-Denver (d)	1,084
(See Also C. B. & Q	3	Twin Star Rocket	5-7	1-14-45	Minneapolis-Houston (e)	1,368
C. R. I. & P.)	1	Peoria Rocket	4	9-19-37	Chicago-Peoria	644
	1	Des Moines Rocket	6	9-26-37	Chicago-Des Moines	716
	2	Choctaw Rocket	6	11-17-40	Memphis-Amarillo	761
P. E. C. (See A. C. L., C. & E. I., I. C. and Penna.)	2	Texas Rocket	- 4	11-15-38	Kansas City-Dallas (f)	677
	. 3	The Rebel	4	7-1-35	New Orleans-St. Louis	751
G. M. & O		Panama Limited	11	5-3-42	Chicago-New Orleans	921
. C.	1	City of Miami	7	12-18-40	Chicago-Miami	995
	1	Green Diamond	4	5-17-36	(I. CC. of GaA. C. LF. E. (Chicago-St. Louis	
C. C. SL. & A	. 3	Southern Belle	9	9-1-40	Kansas City-New Orleans	873
1. P.		Missouri River Eagle	6	3-10-40	St. Louis-Omaha	478
	2	Colorado Eagle	6	6-21-42	St. Louis-Denver	1,011
	1	Delta Eagle	2	5-11-41	Memphis-Tallulah	518
V. Y. C	2	Twentieth Century Limited	17	6-15-38 (a)	New York-Chicago	961
. I. C	2	Empire State Express	16	12-7-41	New York-Cleveland (g)	872
	1	James Whitcomb Riley	8	4-28-41	Chicago-Cincinnati (h)	605
		Comet	3	6-5-35	Greenbush-Whitman	275
VNH&H	1	Broadway Limited	15	6-15-38 (a)	Chicago-New York	908
I. Y. N. H. & H.	-			12-19-40	Chicago-Miami	1,039
	-	South Wind	7		(PennaL. & NA. C. LF. E.	C.)
(See also A. C. L., Seaboard and Southern)	1		5	12-13-37	(PennaL. & NA. C. LF. E. Jersey City-Philadelphia	C.)
Pennsylvania (See also A. C. L., Seaboard and Southern) Reading	. 2	South Wind Crusader		12-13-37 2-2-39	Jersey City-Philadelphia	360
Pennsylvania (See also A. C. L., Seaboard and Southern) Reading	. 2	South Wind	5		Jersey City-Philadelphia New York-Miami	
(See also A. C. L., Seaboard and Southern)	. 2	South Wind Crusader	5		Jersey City-Philadelphia	360
Pennsylvania (See also A. C. L., Seaboard and Southern) Reading	1 3 3	South Wind Crusader Silver Metor	5 17	2-2-39	Jersey City-Philadelphia New York-Miami (PennaR. F. & PSeaboard) New York-St. Petersburg	360 1,388
Pennsylvania (See also A. C. L., Seaboard and Southern) Reading Readoard	1 3 3	South Wind Crusader Silver Metor Silver Metor	5 17 12	2-2-39 2-2-39	Jersey City-Philadelphia New York-Miami (PennaR. F. & PSeaboard) New York-St. Petersburg (PennaR. F. & PSeaboard) New York-New Orleans (PennaSou.) Washington-Memphis	360 1,388 1,247
Pennsylvania (See also A. C. L., Seaboard and Southern) Reading seaboard	. 2 1 . 1 . 3 . 3 . 3	South Wind Crusader Silver Metor Silver Metor Southerner Tennessean	5 17 12 8	2-2-39 2-2-39 3-31-41 5-17-41	Jersey City-Philadelphia New York-Miami (PennaR. F. & PSeaboard) New York-St. Petersburg (PennaR. F. & PSeaboard) New York-New Orleans (PennaSou.) Washington-Memphis (SouN. & WSou.)	360 1,388 1,247 924 619
Pennsylvania (See also A. C. L., Seaboard and Southern) leading leaboard	. 2 1 . 1 . 3 . 3 . 3	South Wind Crusader Silver Metor Silver Metor Tennessean Sunbeam	5 17 12 8 9	2-2-39 2-2-39 3-31-41 5-17-41 9-19-37	Jersey City-Philadelphia New York-Miami (PennaR. F. & PSeaboard) New York-St. Petersburg (PennaR. F. & PSeaboard) New York-New Orleans (PennaSou.) Washington-Memphis (SouN. & WSou.) Houston-Dallas	360 1,388 1,247 924 619 264
Pennsylvania (See also A. C. L., Seaboard and Southern) Reading seaboard	. 2 1 3 3 3 3 3 3 . 2 2 2	South Wind Crusader Silver Metor Silver Metor Southerner Tennessean Sunbeam Hustler	5 17 12 8 9 6 13	2-2-39 2-2-39 3-31-41 5-17-41 9-19-37 9-19-37	Jersey City-Philadelphia New York-Miami (PennaR. F. & PSeaboard) New York-St. Petersburg (PennaR. F. & PSeaboard) New York-New Orleans (PennaSou.) Washington-Memphis (SouN. & WSou.) Houston-Dallas Houston-Dallas	360 1,388 1,247 924 619 264 264
Pennsylvania (See also A. C. L., Seaboard and Southern) leading leaboard	. 2 1 . 1 . 3 . 3 . 3	South Wind Crusader Silver Metor Silver Metor Tennessean Sunbeam	5 17 12 8 9	2-2-39 2-2-39 3-31-41 5-17-41 9-19-37	Jersey City-Philadelphia New York-Miami (PennaR. F. & PSeaboard) New York-St. Petersburg (PennaR. F. & PSeaboard) New York-New Orleans (PennaSou.) Washington-Memphis (SouN. & WSou.) Houston-Dallas	360 1,388 1,247 924 619 264

(See C. & N. W.)

(a) Date lightweight equipment was installed instead of heavy on an existing train.
(b) During winter this train is known as the "Cheshire" and operates between Boston and White River Junction.
(c) Train splits at Manilla, Iowa, one section going to Omaha, another to Sioux Falls.
(d) A streamlined connection is operated between Limon and Colorado Springs.
(e) Operates over B.-R. I. between Dallas and Houston.
(f) Makes a round trip also between El Reno and Oklahoma City.
(g) A connection for this train is operated between Detroit and Buffalo.
(h) Operates over the I, C. between Chicago and Kankakee.

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Tailoring Tracks

High standards of construction and upkeep, together with adequate fixed properties generally and low-cost maintenance, are basis of improved passenger service

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To Keep Pace with Improvements in Passenger Service, Tracks in High-Speed Territories Must Conform to Rigid Standards of Line, Surface and Cross - Level

A railroad can provide the best and latest in passenger train accommodations, but it is conceivable that the favorable impression made by these on the passenger will be partly or wholly nullified if he is subjected to frequent jerks and jolts, if his coffee slops into the saucer in the dining car, if he is rolled around in his berth, if he is uneasy as to his safety, or if he has to forego the pleasure of reading because his eyes are unable to keep up with the bouncing of the That such experiences make a lasting impression on the traveler is indicated by the fact that a favorite topic of conversation in smoking compartments or club cars is whether this road or that one offers the most comfortable

A number of railroads make use of specially-designed and equipped recorder cars for determining to what extent their tracks are afflicted with defects in line, surface and cross-level. Such findings for a particular territory could, no doubt, be corroborated with a fair degree of accuracy by comparing them with the impressions of passengers while riding over the same territory. Higher speeds have the effect of magnifying the effects of irregularities in the track, so that in the interest of comfort it becomes more necessary than ever before to eliminate or reduce such irregularities

The Factor of Safety

As a factor in determining the safety of railroad transportation, the condition of the tracks and bridges is at least as important as any other single element. It follows, therefore, that any plan for increasing the attractiveness of railroad transportation must give adequate consideration to the matter of assuring the continued integrity of these structures. The fact that travel by rail is the safest form of transportation available constitutes an asset for the railroads that should be protected and enhanced by every possible means.

The final factor to be considered is that of the influence of the fixed properties on the cost of railroad transportation. This comes about largely through the expenditures required to keep these

A S THE railroads make plans for their passenger service of the future, one of the most important and difficult problems facing them is that of establishing a policy with respect to the fixed properties that will assure the most effective degree of integration with the over-all strategy. This is so because these facilities, especially the track structure, are literally and figuratively the very foundation of railroad transportation. On this foundation the railroads are planning an impressive superstructure in the form of high-speed ultra-modern train service, but it is basic that no edifice can be stronger than the

By way of illustration, consider some of the more important ways in which the character of the passenger business that a railroad is capable of rendering is influenced by the condition and nature of the fixed plant. Studies made by the railroads to determine what the passenger wants have shown, as might be expected, that speed, comfort, safety and the considerations that a prospective traveler will have in mind as he ponders the question of whether to make his trip by train, plane, bus or in his auto-

substructure on which it is built.

mobile. In railroad travel every one of these factors is influenced at least to some extent by the character of the fixed properties, especially the track, and the efficiency with which they are maintained.*

Train Speeds - and the Tracks

To a certain extent, speed, comfort and safety are inter-related, but for the purposes of this discussion they will be considered separately. More often than otherwise, train speeds today are determined by the limitations of the tracks and bridges rather than by those of the equipment. Such factors as alinement and grades, the character of the track construction, the standards of maintenance, and the condition of the bridges, all have a bearing in determining the extent to which passenger schedules can be shortened by increasing the speeds of trains and by maintaining the higher speeds for long distances without appreciable slow downs.

Riding comfort is also influenced to an important extent by track conditions.

^{*} Since they have been made the subject of a separate article in this issue, passenger stations are not included in this discussion.

for Faster Trains

properties in an adequate condition of maintenance and repair. During the five-year period ending with 1939, the last pre-war year, the average amount spent annually for this purpose by the Class I railroads of the United States amounted approximately to 11.6 per cent of operating revenues. The extent to which the railroads are able to hold this category of expenses in line in view of higher wage rates and the more exacting needs of high-speed service will certainly be a factor in determining the cost of that service.

Keeping the foregoing considerations in mind, the things that the railroads must do to integrate their fixed properties with the plans they are making for rendering improved passenger service can be boiled down into two classifications, (1) the changes that must be made to permit the higher speeds required, giving due consideration to safety and comfort, and (2) the steps that must be taken to insure that the cost of maintaining these properties will be held to a minimum. For the purposes of this discussion the factors embraced in these two classifications are dealt with primarily from the viewpoint of the needs of passenger traffic, although the influence of freight traffic is obviously a vital, and frequently predominant, consideration.

Line Betterment Needed

In the first category one of the most important factors to be considered is that of line improvement, including the reduction of curves and grades. Beginning with the introduction of the first high-speed streamlined train more than a decade ago, many railroads initiated programs of reducing curves and improving their lines generally, but to a considerable extent these were interrupted during the war, with the result that there is a great deal of work of this nature yet to be done. Further, during the interim since the first streamliner went into service, the railroads have raised their sights considerably regarding train speeds and comfort, necessitating additional improvement work on lines that were thought at one time to embrace standards that would hold good indefinitely. Finally, with plans being made to extend high-speed service to hundreds of miles of new territories, it will be necessary to bring the standards of alinement in these territories up to those required for such service.

An indication of the amount of lineimprovement contemplated by the railroads as a whole is given by the plans of a limited number of roads as revealed in a recent survey. On one road plans are being made to reduce the curves on about 500 miles of lines; on another improvements are expected to be carried out immediately on about 20 per cent of its main line. A third reports that it will have to reduce about 40 curves in high-speed territory; and several others indicated that, before high-speed service can be inaugurated or extended, it will be necessary to make line improvements on an extensive scale.

Much of the thinking and planning that is now being done regarding line improvement work is predicated on the thought that the need for faster service can best be served by establishing a practical maximum speed for a given district and then making such changes in the line as are necessary and feasible to permit trains to operate at or near this maximum for long distances. This means that, in these distances, all curvature must be reduced to or below the established maximum, generally one degree or slightly more, and that all other restrictive features, such as bridges with inadequate load ratings, must be removed. Incidentally, it means also that the need for slow orders for whatever

reason must be reduced to a minimum and that where such orders are unavoidable the permissible speed must be made as high as possible.

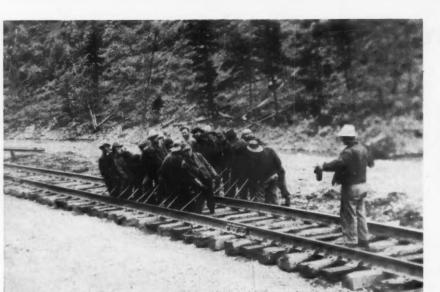
Curvature and Comfort

In not a few instances the desire to insure greater riding comfort for pas-sengers, rather than to shorten train schedules, is the primary objective of curve-reduction projects. For the same reason there is a trend toward lengthening the minimum tangent distance permitted between curves, the purpose being to provide a distance of sufficient length to permit equipment to return to the vertical position before entering the next curve. Another consideration in curve reduction is the necessity of keeping the maximum permissible curvature sufficiently low so that when sufficient super-elevation is imposed for high-speed passenger trains it will not be excessive for slower-moving freight

While emphasis is placed in this discussion on line improvement as an adjunct to high-speed service, sight should not be lost of the fact that such projects also frequently have other objectives which, in fact, may constitute the primary considerations. These include the desire to save distance, to secure operating advantages by reducing grades, or to decrease curvature for the purpose of effecting economies in track maintenance and train operation. In other words, when line improvement projects are up for consideration it is not always nec-



To Avoid Speed Restrictions for Streamlined Trains Many Bridges with Inadequate Load Ratings Will Be Reconstructed or Reinforced



Much Curve-Reduction Work Remains to Be Done in Preparation for Faster Service

essary to attempt to justify them only from the viewpoint of the advantages with respect to high-speed operation. Another consideration in this respect is that, because of the availability of modern types of mechanized grading equipment capable of moving earth in large volume at relatively low costs, line-change projects that a few years ago would have been out of the question have now been brought within a practicable range of expenditures.

To permit the high sustained speeds that will be required in the future many roads are considering the possibility that it may be necessary to revamp or rebuild some of their layouts through terminals or congested areas. In any event, to reduce delays at locations where trains must be serviced en route, it will be necessary to insure that the servicing facilities will be of such design and location as will permit them to accomplish their function in a minimum of

The Knottiest Problem

There can be little argument with the statement that the railroads will have to undertake extensive improvement projects of the types mentioned above if they expect to compete successfully with other modern forms of transportation. Yet the problem of determining the amount of money that can justifiably be spent on such work constitutes one of the knottiest questions facing railroad managements today. Some categories of improvement work are of the socalled self-liquidating type in that specific savings are realized which permit the undertaking to be considered in the nature of an investment bringing a definite, measurable return. Unfortunately, this is not necessarily the case with many of the improvement projects, such as curve-reduction work, that must be undertaken to permit higher train speeds and greater comfort for passengers. The principal advantage hoped for from such projects is to get the traveling public to

regard travel by rail with such favor that it will be willing to spend its money for that type of service in preference to any other. This is good will, which is an intangible that cannot be translated into terms of a percentage return on the investment.

Lacking a definite yardstick for measuring the benefits to be derived from some types of improvements, management must rely on judgment alone in deciding whether or not to proceed with this or that project. One thing is certain-the answer does not lie in a penurious attitude, for it has been demonstrated time and again that money must be spent to get business. In other words, if the railroads wish to avoid the risk of falling behind in the race for passenger business, they must be willing to make the expenditures that will be necessary to keep their properties abreast of the times.

In any discussion of the relationship between high-speed service and the fixed properties, the question of the standards of track construction and maintenance looms as an important factor. Recognizing that such matters as line, surface and cross-level have a direct bearing on the extent to which speeds can be increased with comfort and safety, many engineering and maintenance officers are devoting a great deal of thought these days to the problem of whether and how much it will be necessary to improve present standards in preparing for the trains of the future. When queried recently regarding this question a group of such officers was practically unanimous in expressing the opinion that an era of higher track standards and greater refinements was in the offing.

This not only means that the tracks in high-speed heavy-duty territories must be of stronger, more durable construction—with heavier rail where indicated, more efficient fastenings, possibly longer ties, a clean free-draining ballast section of adequate depth, and other refinements and improvements—but that the standards of maintenance must be

stepped up to insure maximum comfort and safety at high speeds. Since it is certain that the future will see the extension of high-speed service to new territories, it is apparent that there must be a corresponding extension of the new high standards of track construction and maintenance.

Deferred Maintenance

No discussion of track standards would be complete without reference to the deferred maintenance that accumulated during the war years when shortages of materials and labor prevented the railroads from keeping the condition of their tracks from deteriorating under the impact of the record traffic being carried. Rail especially has suffered from inadequate replacements, and outof-face surfacing is another item of work that has fallen far behind on many roads. Evidence that the railroads are anxious to make up this deferred maintenance as rapidly as possible is afforded, in part, by the large tonnages of new rail that have been ordered for delivery in 1946, although it is reasonable to expect that some of the new rail to be laid next year will be of a heavier section than that to be replaced and will help, therefore, to bring the tracks up to the new high standards required for future traffic.

The matter of track standards is closely interwoven with that of low-cost maintenance, which constitutes the second category of things to be done to integrate the fixed properties with the better and faster passenger service being planned. In fact, there is a tendency in some quarters to regard higher standards of construction as being equally important from the viewpoint of reducing maintenance costs as for the purpose of preparing for high-speed service. The reasoning, which has been verified by experience, is that heavyduty track, supported on a stable, welldrained roadbed, is much more economical to maintain than one of lighter construction on a roadbed that is inclined to instability.

Stabilization in Spotlight

As a means of reducing maintenance costs, while at the same time improving riding conditions, roadbed stabilization is claiming particular attention at the present time. Elements in any program to accomplish this end are considered to include increased widths of cuts and fills, flatter side slopes, careful attention to drainage, both surface and sub-surface, and such other means as may be found necessary or desirable. Among these, the practice of injecting grout into the roadbed to drive out and replace troublesome water is gaining increased acceptance. Another new prac-

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tice that is becoming increasingly popular as a means of stabilizing the roadbed is that known as right-of-way grading, which entails the use of modern off-track grading equipment to smooth the right of way, flatten the slopes, and move drainage ditches as far as possible from the track.

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An important phase of the problem of reducing or controlling maintenance costs is that of doing what is necessary to insure that the work is performed with maximum efficiency and economy. In view of the upward trend of wages, this consideration was never more important than it is today. To maintain their tracks to the higher standards that will be required, and at the same time to keep the expenditures for this purpose under rigid control, maintenance men will find it necessary to exercise all the skill and ingenuity at their com-mand. To accomplish this end they expect that it will be necessary to improve the quality and intensity of the supervision over field work, to subject the different gang organizations to careful scrutiny with the idea of revamping them as necessary to promote efficiency, to make maximum use of the wide variety of power equipment that is now available for maintenance work, and to develop suitable machines for performing tasks that have not yet been mechanized. With reference to mechanization there is in evidence a distinct trend toward the more extensive use of offtrack types of equipment as a means of minimizing loss of productive time due to the passage of trains and of reducing delays to traffic.

Further Requirements

Mention is made in the foregoing discussion of only some of the more important factors to be considered in integrating the fixed properties with the strategy for improving passenger serv-To these may be added many other requirements, such as the need for modern shops and enginehouses to assure the handling and repair of passenger equipment with maximum efficiency and dispatch; the installation of high-speed turnouts at the ends of double track and other points of traffic diversion; adequate protection for the tracks against slides, washouts and stream erosion; and the elimination of hazards at grade crossings through better protection when needed and a revival of programs for eliminating such crossings.

Engineering and maintenance officers are keenly aware of the responsibilities that will confront them in keeping the fixed properties in step with advances in service. Furthermore, they know what must be done, and await only authority from their managements to put the necessary work under way.

Many Line Changes Are Planned to Permit Increased Speeds and to Secure Other Advantages



The Practice of Right-of-Way Grading Is Gaining in Favor as a Means of Stabilizing the Track and Producing Other Advantages



There Is a Trend Toward the More Extensive Use of Off-Track Equipment in Maintenance Work





Traffic, operating and engineering officers see improvements essential to well-rounded service. New materials hold forth wide possibilities

With the railways committed to high-speed, colorful and comfortable streamlined trains as their primary bid for post-war passenger business, one of their largest and most important problems, a natural corollary to their streamlined trains, is to bring their passenger stations generally into step with these trains. As a whole, this presents a huge job, staggering in its proportions—with ramifications as varied as the size, character, and often politics, of the cities and communities served—but it must be faced realistically and without unnecessary delay.

Notwithstanding the thousands of passenger stations over the country that are beyond reproach from any standpoint, and often a source of civic pride, there are other thousands of stations in cities, towns and villages, built in an earlier day, and often long neglected, that belie the times and the progressive spirit of the railroads toward the public. Even some of the most generally up-todate passenger stations and terminals are out-of-date in some respects, causing patron inconvenience and ill will, at a time when such factors are certain to have an important bearing on the success of the railroads in meeting the competition of other forms of transpor-

These are facts that are well recognized by progressive railway managements, passenger traffic officers and those in charge of the construction and maintenance of station facilities. Where there is no such recognition, individual roads will suffer—in fact, the railroads

as a whole will suffer—and there should be little surprise at the inevitable consequences. The problem is how to approach and remedy a situation of such magnitude in the most effective, practical and economical manner. Obviously, it cannot be undertaken and remedied in one year or even a few years. Likewise, it cannot be remedied in the most effective and economical manner by any broad application of standard plans. The remedy must be undertaken on a sound, forward-looking, progressive basis, started promptly and spread over a period of years, with each individual station a project unto itself, giving due consideration to the condition of existing facilities, the needs of the community, the amount and character of the traffic to be handled, competition, and the multitude of other factors that exert an influence in most instances.

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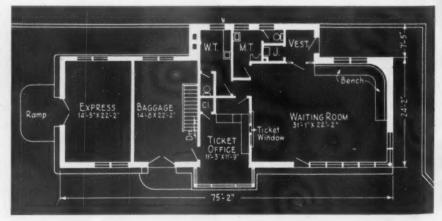
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New, Relatively Small Passenger Stations on the Canadian National, of Which Several Are Under Construction at the Present Time, Are Adopting Low, Trim Lines, Broad Overhanging Canopies, Large Window-Panel Fronts, and an Interior Finish and Decoration That Will Be Pleasing, While at the Same Time Highly Practicable from a Low-Maintenance Standpoint. The Sketch and Plan Herewith Are of the Station Now Being Built at Midland, Ont.



MUST "GO MODERN" along with passenger trains Lineal Congrations PLATFORM Lineal Congrations Lineal Congrations

No such program on the railroads as a whole, or on any specific road, should contemplate excesses in either the scope or treatment of station facilities, in small communities or large, regardless of local desires or pressure. The day of monumental stations—for the sake of being monumental—is over, even in the largest centers of population. Rather, new station and terminal facilities of the future should be viewed from the standpoint of adequacy in scope and layout, combined with sound architectural treatment and a choice of construction materials, decoration and furnishings that will embrace utility and the most widespread public appeal.

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In fact, the program of passenger station rehabilitation from the standpoint of any particular road may call for a minimum of entirely new construction. On many roads, outstanding improve-

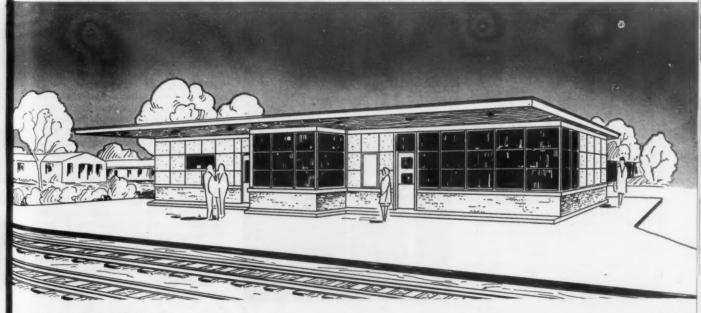
ments can be made by repairing and modernizing existing structures and by obliterating architectural lines of an earlier era, both inside and out—indeed, in hundreds of cases, by cutting down the size of present stations, by replacing them with modern structures of a size commensurate with present and prospective traffic, and, in some instances, by eliminating existing stations altogether.

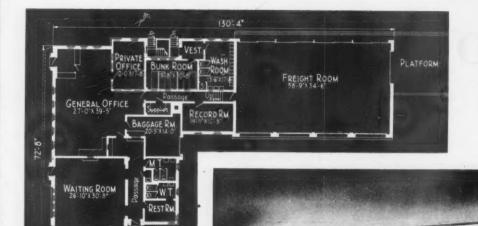
What Traffic Men Say

There are still some on the railways which belittle the importance of adequate, convenient and pleasing passenger stations as builders of good will and increased railroad patronage. Most of those holding this viewpoint give preminence to the character of passenger train service afforded, and see in the

On the Pennsylvania, at Edgewood, Md.—One of Several Attractive Passenger Stations Constructed by This Road During the Last Few Years to Meet Sharply Increased Travel Demands. Three Equally Attractive Shelters of Complementary Design Supplement the Main Station on the Far Side of the Tracks

colorful, high-speed streamliners almost entirely the answer to the problems of competition and of gaining increased good will. Significantly, a large majority of the higher officers of the railways charged specifically with the responsibility of holding and increasing passenger traffic, and who may well be ex-





Below — Architectural Perspective of the New Combination Passenger and Freight Station Now Under Construction on the Burlington at Rockford, Ill. Its Smooth Lines and Effective Use of Wisconsin Lannon Limestone and Glass Blóck Facing Will Make It Stand Out Among Surrounding Buildings

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Above—The Plan and Interior of the Station at Rockford Will Be Fully as Modern as the Exterior, Employing Colorful Decoration, Trough-Type Fluorescent Lighting and Club-Type Furniture

pected to place the highest value on modern train service, do not share this viewpoint, and are among the most ardent proponents of passenger station improvements as essential to their success in building passenger traffic.

Representing the thinking of many of these officers, Claude E. Peterson, vice-president, passenger traffic, of the Southern Pacific, has said within the last few weeks: "In my estimation, great importance must be attached to providing our patrons with adequate and pleasing service at our terminals

and other stations. It would seem rather inconsistent to provide for our patrons the very best in rolling equipment, with everything in the way of comfort, convenience and safety en route, and at the same time require them to purchase tickets, make other arrangements for their trips, and board and leave trains at stations which do not provide the same comforts and conveniences.

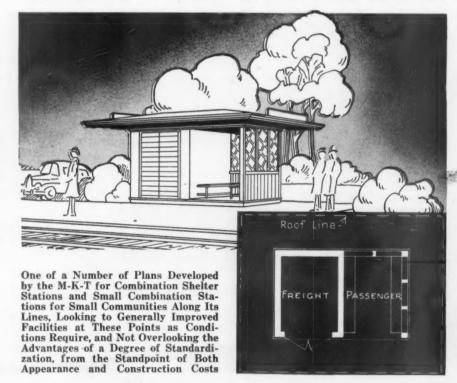
"Railroad stations in the future should be constructed with the view to making all necessary facilities available to our patrons with minimum walking distance. From the time the passengers alight from streetcar, taxicab, private automobile or other conveyance to the time they board trains, including the purchase of transportation, the checking of baggage, the delivery of hand baggage to red caps for placing on trains, the enveloping of transportation for night trains, and finally, the walk to trains and the occupancy of the space assigned, the effort required on their part should be a minimum."

At the same time, Mr. Peterson expressed clearly and with equal force his view that the day of monumental railroad passenger stations is past—that the railroads should not be expected or required to spend large sums of money to construct and maintain stations of a colossal nature to satisfy a civic ambition, but which do not provide facilities that are in any way superior to what might be provided by more modest structures.

Must Be Modern

Reflecting the viewpoint of the passenger and operating departments of his road, F. N. Hicks, passenger traffic manager of the Chicago, Milwaukee, St. Paul & Pacific, says that the question of the value of adequate, attractive and well-decorated and equipped passenger stations in the era ahead is one that has been foremost in the minds of the passenger and operating departments of his road. "It is my opinion," he says, "that where traffic volume warrants, station facilities should be modernized to give the passenger every convenience and comfort—and that will be the program of this railroad, along with improvements in equipment and train service."

Speaking for the passenger traffic officers of his road, the passenger traffic



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manager of a large eastern road says that, "From the standpoint of architecture and construction, railroad stations should be on a par with or in advance of both airport ticket offices and bus terminals," and then goes on to itemize the more important features to which consideration should be given to this end.

"In most cases," he says, "changes can be effected by the reconstruction of the interiors of our present stations. Essential factors to be given consideration in this regard should include modern architecture, air-conditioning, acoustical treatments, modern lighting, attractive and comfortable waiting rooms and restaurant facilities, modern and convenient ticket offices, modern loud speaker systems and train information boards, convenient and suitable parcel and baggage checking facilities, and adequate garage or parking facilities adjacent to stations for the accommodation of railroad patrons.

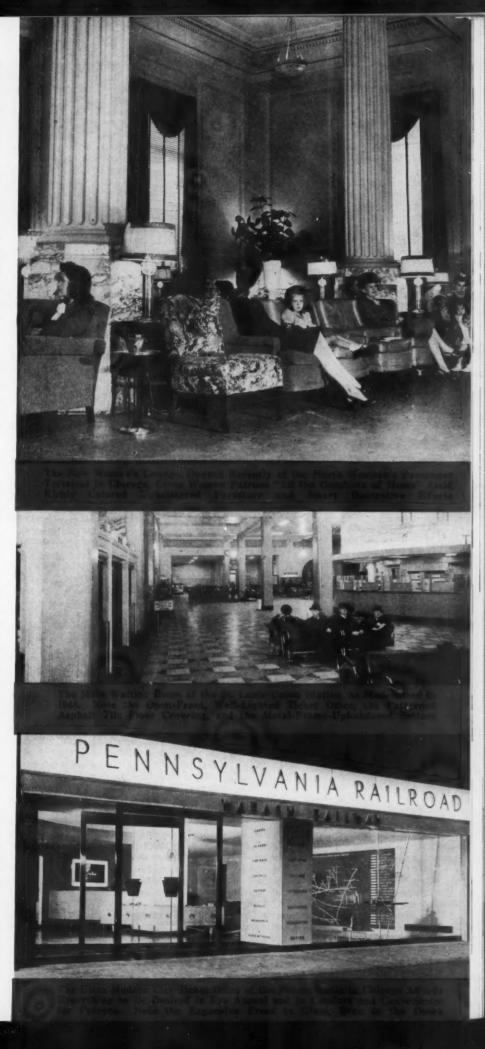
"It has been truly said that the station is the 'front door' of the railroads, and, in recognition of this fact, this company is actively progressing the improvement of its stations to the end that our patrons may be served more comfortably and efficiently in the years ahead."

Repairs One Solution

To provide adequate, convenient and pleasing passenger stations on the railroads is not primarily a matter of wholesale tearing down and rebuilding, although there are many places where only such drastic measures will suffice, both from the standpoint of adequacy and economy. Fundamentally, station improvements fall within three principal categories-repairs and redecoration, modernization through renovation, and new construction. In all cases the end is the same. Repairs may extend from foundation to roof, both exterior and interior, and along with repainting or cleaning of the exterior, redecorating of the interior, and relatively minor improvements in such matters as heating and lighting, may be fully adequate to all requirements of appearance, comfort and service demands, especially where the basic architecture and construction are sound.

At many other points, involving stations of the late Victorian era, or of the years immediately following with their often less pleasing type of architecture, and frequently structures that are oversize from the standpoint of current traffic or operations, modernization may be the only answer short of dismantling and complete reconstruction. That the field here is broad is evidenced by the hundreds of stations that have been modernized during the past eight or ten years in sizable programs on many roads-programs that were seriously handicapped during the war, except as the work could be done with non-critical or substitute materials.

Obtaining adequate labor, too, presented a serious problem, but in spite of these handicaps, road after road, to the



extent that it did not interfere with the war effort, pushed station repair and modernization projects to the limit, one road alone having repaired and other-wise improved the station facilities at more than 200 points on its lines since about the middle of 1941. Furthermore, this road and many others, with the approval of the War Production Board, completely remodeled, modernized and even enlarged stations at a number of points to take care of shifts in population and passenger traffic demands occasioned by the war.

Station Modernization

In this work, which is typical of that to be done in connection with thousands of other projects yet to be undertaken, unnecessary second stories were re-moved; high-gabled and costly-maintained roofs, usually with cumbersome overhanging eaves, were cut down or completely rebuilt; mutliple chimneys of the fireplace-heating days were cut off; exteriors of stone or brick were cleaned; old frame siding and trim were either repaired and repainted or were completely faced over with prepared shingles or siding; bulky wood-paneled doors with obsolete hardware gave way to trim, full-panel doors of wood or glass; the curves of old window lines and other openings were straightened to produce a new rectilinear streamlined effect; and many unnecessary window openings were bricked in, while in other cases the sash and glass were replaced with glass blocks to produce a modernistic effect.

Inside, the changes made have often been more extensive and effective than on the exterior, completely blotting out the past and affording arrangements and furnishings not only up-to-date in appearance, but offering greatly increased convenience and comfort for patrons. In this work the trend has been to eliminate partitions wherever possible. Separate general waiting rooms for men and women, with congested connecting passageways, have been combined in large, unobstructed areas; and closed-in ticket offices with barred ticket windows, which threw a mental as well as a physical barrier between patrons and railroad representatives, have given way to attractive, open-top counters, which are not only conducive to better service on the part of agents and ticket sellers, but which bring buyer and seller into a more friendly and intimate relationship.

Interior Improvements Many

Taking advantage of modern building materials, many of which were not in critical demand by the armed forces during the war, floors, walls and ceilings have been repaired and refinished, or completely resurfaced, producing a clean, sanitary and pleasing effect. To an increasing extent, acoustical materials have been used to reduce noise and to produce a generally restful atmosphere.

In this class of work, major attention has been given to toilet and wash rooms; special women's restrooms, and even nurseries, have been provided at more important points; baggage and parcelchecking facilities have been amplified and otherwise improved, the trend being definitely toward the use of coin lockers, which preclude the need for attendants and increase passenger convenience; oldstyle settees have either been completely refinished or have been replaced, in many cases with upholstered, loungetype chairs and divans, usually in club arrangement, with accompanying center and end-tables, ash-tray standards and attractive lighting.

Improved lighting, in fact, has featured most station modernization projects, and, in many cases, in itself, has transformed the general appearance of waiting room interiors beyond anything possible by other means. With this has come improved station heating, with the elimination or complete masking of exposed radiators, or the substitution, in part or in full, of means which are completely hidden and which insure uniform

temperatures.

Such modernization projects have not been confined to the station buildings themselves, but have extended to station platforms, platform sheds and canopies. and to all types of company buildings anywhere on or adjacent to the station grounds. One road alone has removed hundreds of no-longer-needed buildings from station environs during recent years, while another has repaired and repainted, or otherwise overhauled and refinished, approximately 5,000 buildings along its lines within the last five years.

Possibly the most striking example of train-shed improvements made in recent years has been the removal of the old, high, arch-type sheds at the Illinois Central's principal passenger stations at Chicago and New Orleans, La., and their replacement with modern, low sheds-eliminating not only structures unsightly from a present-day architectural standpoint, but, equally important, structures that were unusually costly to

maintain.

New Construction

In spite of all of the work that has been done to date to improve the appearance and passenger accommodations at numerous stations over the country, it must be admitted that, in the light of modern trends in architecture, present-day public taste and appeal, and the new era of streamlined passenger train service-and not overlooking the competition of other forms of transportation -the surface in passenger station improvements on the railroads has hardly been scratched. Ahead, therefore, on most roads, must lie programs of station modernization and reconstruction that will assume proportions far beyond anything undertaken to date, embracing the smallest as well as the largest stations.

In the case of new construction, the field for improvements is wide open and extends far beyond the limits or possibilities in most modernization projects. In these cases, no work should be undertaken until all interested parties have been heard, and until all features relating to architecture, design and construction, and to interior layout, decoration and equipment, have been explored in the light of local conditions. Going beyond this, leading architects of the country, including Lester C. Tichy of New York, who has given the most careful consideration to railroad station projects, call for long-term planning on the part of the railroads, and for co-ordinating their plans closely with those of the communities served, to the end that not only the station building, but the entire station area, may become an asset to the railroad and a source of civic pride.
In this regard, Mr. Tichy states that

if a railroad is to derive the greatest benefit from a program of passenger station modernization, it should draw up a comprehensive plan for the system as a whole, to be carried out over a period of 5, 10 or 20 years, as may be necessary, enlisting the co-operation of every community involved, looking to joint efforts to remove the blighted areas that so frequently surround stations, and to restoring the railroad station as a

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As an Architect Sees It

Mr. Tichy sees no one type of architecture as fitting all conditions; prefers a relatively simple, clean-cut structure of what he chooses to call "contemporary" design, rather than streamlined design, utilizing to the extent possible native materials so as to give the structure an intimate tie-in with the community; and insists upon careful consideration of the provision of suitable driveways, with adequate loading and unloading points, and adequate parking where required-all from the standpoint of avoiding traffic congestion, and without destroying or impairing the landscaping features of the station grounds.

As to the layout of the interior, he calls for careful study of local passenger habits, with consideration to the trend toward rapid movement through stations, inbound and outbound, employing them merely as gateways to and from trains-a trend which visualizes the need for smaller waiting rooms and lounging areas than required formerly, but which at the same time demands the nearest possible approach to straight-line movement for passengers as they carry out the necessary prerequisites to boarding trains and seek the shortest route of egress as they leave trains.

As to interior finish and decoration, Mr. Tichy sees a wide choice of materials available, but cautions that the selection should be made not alone from the standpoint of appearance as new, but with consideration also to utility value, susceptibility to cleaning, and cost of maintenance. He favors the use of color as a means of improving appearance and of producing a restful atmosphere, but recommends strongly against garish decorations, and sees in proper lighting, both exterior and interior, a long-neglected means for display and advertising purposes, for blotting out objectionable architectural features, and



Conservatively Modernistic in Conservatively Modernistic in Architectural Treatment, This Station Now Under Construc-tion on the Canadian Pacific at Leaside, Ont., Is Similar in Type to Three Other Stations Either Now Under Construction or Contemplated. Exterior Is Essentially of Brick, Stone and Glass, While Features of the Interior Will Include Oak - Paneled Walls, Acoustic - Tile Fluorescent Lighting Concealed Radiation

for enhancing the appearance of even the most attractive decorations and furnishings.

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Trend Toward Color

In his views on color he is fully supported by the recommendations of a committee of the American Railway Bridge and Building Association, which, in a report on Interior Painting pre-sented at the annual meeting of the association on October 17, said in part:

"For too long a time we have been inclined to the use of drab, dull, uninteresting colors, a fact which applies in its relation to other things, as well as buildings. The easy way in this, as in other things, has been to continue over the years in the same manner as in the past. Fortunately, however, this phase appears to be passing, and we are becoming color conscious.

"The railroads cannot expect to impress their patrons with their progressiveness if they continue to maintain the entrances to their modern, beautifullydecorated streamlined trains through uninteresting, colorless waiting rooms and other public spaces and facilities. Other and smaller businesses than the railroads are keenly aware of this, and seek the aid of color to assist them in selling their services or merchandise to the public. It is neither necessary nor desirable for us to use blatant colors, such as might be proper in a second-rate movie palace, to sell our services, but the use of proper colors can be developed to produce a dignified composition, which will, at the same time, be inviting and cheerful."

As in station renovation and modernization projects, new station construction must give consideration to the use of acoustical materials on walls and ceilings, to modern ticket counter construction, modern wash and toilet rooms, modern furniture, modern lunch or dining facilities, modern parcel-checking facilities, an adequate number of readily accessible telephones, modern lighting and heating, the installation of adequate train information boards, an effective loud speaker announcing system, and, for restricted areas at least, an adequate system of air cooling or air conditioning. All of these things, and many more,

must be kept foremost in mind by those who plan and build the railway passenger stations of the future.

Fortunately, in the materials, equipment and furnishings available to them, or which will shortly become available in abundance, including many developments of the war period, the railroads will find almost limitless possibilities of incorporating attractiveness and serviceability into their new stations, in combinations that will win for them widespread public acceptance and good will. In these new stations they will not discard those materials and items of equipment that have always been considered essential to building work, but it is certain that they will supplement them to a greater extent than ever before with such materials as glass block and other structural glass; new and improved forms of floor and wall coverings; plastics for a variety of purposes; stainless steel, aluminum, chromium and other metals and metal alloys; and rubber and asphaltic and asbestos products in their many colorful combinations—all to provide improved decorative treatment, while at the same time increasing the utilitarian value of the facilities.

Consideration, too, to a greater extent than heretofore, will be given to bright-metal-frame upholstered furniture; to fluorescent lighting of the direct, indirect and purely ornamental types; to improved heating systems, employing unit heaters, and not overlooking the possibilities in radiant heating; to improved sanitary facilities and rest rooms; to more interesting, sanitary and comfortable public eating facilities; in fact,

to improvements in every element of station design and equipment that will add to the comfort and convenience of passengers, and, as suggested by Mr. Tichy and mentioned earlier in this ar-ticle, "help restore the railroad station as a center of town life."

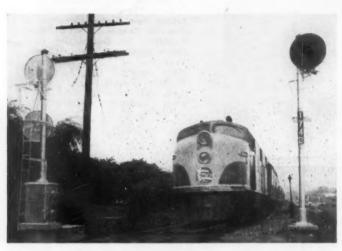
Line of Canopy

City Ticket Offices

Combined with the attention that must be given to passenger stations, the railroads must not overlook the condition of their off-line and city ticket offices-in fact, of any facility through which the public can appraise the progressiveness of the railroads and the kind of service that they are in a position to offer. In their city ticket offices in some of the larger cities many roads have shown far more public consciousness than they have in their passenger stations. Many such offices are models of modern architectural design and treatment. But even in these facilities in many instances there is room for improvement - improvement that cannot continue to be neglected without reflecting unfavorably upon the railroads.

Those whose responsibility it is to provide these facilities—both improved passenger stations and city ticket offices the engineering forces of the railways, with their own staffs, supplemented as may be necessary or desirable by con-sulting architects, have both an understanding of the problems involved and the ability to build what is required, and await only the "go" signal from the managements of their respective roads

Signaling and Train Communication



Automatic Block Signals Improve Safety in the Operation of Passenger Trains

Save Passenger Train Time

Modern systems will promote the efficient utilization of cars, locomotives and tracks by reducing the number of stops and delays for passenger trains

THE various systems of modern signaling will aid future railroad progress by getting passenger trains to their destinations in shorter overall time, with increased safety, and will aid in reductions of operating expenses, so that fares may be competitive with other forms of transportation. Similarly, train communication, which is just now coming into extensive use, will reduce train delays, and, in general, facilitate the operations of passenger trains.

A passenger's first consideration is safety, and this is most effectively accomplished by track circuits which detect the presence of trains and control signals to warn the enginemen of other trains which may be approaching. Also, track circuits are a means for detecting broken rails and checking the position

broken rails and checking the position of main line switches. These basic elements of automatic signal protection are in service on a large percentage of the mileage on through routes which handle

the heavy passenger traffic.

Speed—Time—Distance

Besides basic safety, signaling is an aid in directing trains to operate at the maximum permissible speed for a greater proportion of the time and distance en route. As the speeds of passenger trains are increased to 90 m.p.h. and on up to 100 m.p.h. or more, an increased amount of time is lost when reducing speed and while again accelerating to normal speed. Roughly the time and distance for reducing speed increases as the square of the differences in speed. The time required to accelerate to maximum speed depends on the rating of the locomotive in proportion to the weight of the train, as well as grades. The point of importance is that the installation of modern signaling, including a complete range of aspects, which will prevent unnecessary stops or re-



Modern Interlockings Prevent Train Stops

ductions from maximum speed, will save a lot of train time; something in the nature of four to six minutes in certain instances, which at 90 m.p.h. would permit a train to be from 6 to 9 miles farther along toward its destination.

At interlockings and in centralized traffic control territories, the installation of longer turnouts permit trains to make diverging moves at speeds of 35 to 45 m.p.h. and even up to 50 m.p.h., as compared with 15 to 20 m.p.h. for shorter turnouts. The installation of the longer turnouts, however, must be accompanied by modern signaling to direct enginemen to bring their trains up to and through the turnouts at the speeds for which the new track facilities are designed.

Even when a train is on schedule, the passengers are irked if it is stopped for any considerable time when waiting on a siding, and certainly there is no easier means for shortening overall schedules than to institute means for preventing or minimizing such standing delays. This result is most effectively accomplished by installing centralized traffic control by means of which train movements are authorized by signal indications, rather than by timetables and train orders, the signals at the various sidings, as well as power machines to operate the switches, over extended sections up to an entire division of 100 miles or more, being controlled from a machine in the dispatcher's office.

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During the war, this C. T. C. system was installed as fast as possible on those sections of single track which were handling extra war traffic. For this reason, since January, 1942, more than 3,000 miles of C. T. C. have been completed or are now under way; this total is more than the mileage installed from the time C. T. C. was developed in 1927 up to our entry into the war. The benefits to passengers in saving time will warrant the rapid extension of C. T. C., not only on lines now equipped with signals, but, also, C. T. C. rather than straight automatic block will be installed on lines not now equipped with automatic block signaling.

Will Reduce Delays

Train communication is a new term applied to equipment for two-way telephone communication between persons on the head end and rear of trains, or between trains, as well as between trains and wayside stations. Several such systems were developed and demonstrated in the 25-year period between the last two world wars, but it was not until mid-summer, 1945, that some of the important obstacles were overcome.

For several years the inductive system, using wires along the wayside to

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Sound Systems Including Loud-speakers on Platforms Are an Aid to Passengers



Some Passenger Trains Are Equipped with Automatic Exchange Telephone Systems

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help carry the messages, has been available and installed for regular service in numerous freight classification yards as well as experimentally in road service on the Bessemer & Lake Erie and the Pennsylvania. Now this inductive system is being installed on an entire division on the Pennsylvania, and on extended mileage on the Atlantic Coast Line.

In the meantime, the necessities of war encouraged the development of high-frequency radio equipment, which led to an increase in the number of channels available; therefore, the Federal Communications Commission assigned certain channels for use by railroads. Up to the close of the war, however, the manufacturers were busy making communication equipment for military purposes, so that it is only now that they are in a position to reconvert to manufacture of train communication equipment for the railroads. In the meantime, extensive tests have been made on many railroads, and as a result the manufacturers have had time to adapt their designs to railroad operat-ing conditions, and the railroads have assembled data on savings effected in train time. In conclusion, train communication most surely will be applied extensively in the early post-war years.

and will be an important means for reducing delays to passenger trains.

Prior to the war, some railroads had installed loud-speakers in some passenger stations and on platforms, to announce trains and to furnish other information to passengers. During the war, rapid strides were made in the improvement of microphones, loud-speakers and electronic amplifying equipment used for military purposes. A result is that on some of the recently completed installations on the railroads, the passengers can really understand the announcements. An aid in this respect has been the war-time introduction of young ladies with soprano voices at the microphones.

Within a Passenger Train

Many of the streamlined passenger trains constructed in recent years have included wire-connected telephones in the various cars so that passengers in the observation car, for instance, could call the dining car steward to determine whether space is available for a party of eight customers. On some trains telephones are located in the cab of the locomotive, in the baggage car and in locations handy for the conductor and rear flagman. These telephones are wire-connected and are used by members of the crews as may be required in the operation of the train.

In addition to this type of telephone service, some of the new all coach trains now under construction will be equipped with loud-speakers in each car, wire-connected to a microphone in the conductor's office, so that stations can thus be called and other announcements made over this sound system.

Thus a general conclusion is that modern signaling, train communication and sound systems give promise of saving time and increasing the convenience as well as comfort of passengers.



Engineman Using Train Communication Telephone to Talk with Operator in Wayside Station



Telephone in Cab of Diesel-Electric Locomotive on a Passenger Train



Over \$100,000,000 Being Spent for Cars

Alluring new trains planned—Deliveries began in September— Building industry's capacity expanded to 4.500 cars annually

BENT upon giving their customers in the years ahead the world's finest trains, 32 railroads have already contracted for the purchase of more than \$100,000,000 of new passenger-carrying equipment. Determined that our trains shall be the best and fastest ever operated, these and other roads now are preparing to spend millions of dollars more for modern comfortable cars and for the luxurious streamliners that have demonstrated their popularity so spectacularly with the traveling public.

To meet the requirements of favorable travel market anticipated for the years ahead, the railroads have planned a complete renovation of their passenger-carrying equipment and schedules. Supported by cash resources which are ample for at least the initial stages of a modernization program, and a demonstrated ingenuity by car manufac-turers in the design of comfortable and

attractive accommodations and appointments that will make rail travel increasingly pleasant, it is expected that fulfillment of these plans will result in a flood of orders ranging in total up to 10,000 to 15,000 cars.

Waiting to receive these orders is an expanded car building indus-The present rated capacity to build is reported by the industry to exceed 4,500 cars annually, the railroads' own shops included, which is continually being increased.

There are presently 1,244 new passenger cars on order and undelivered. Although the equivalent of four years' average production during the twelve years preceding the war, 1930-1941, inclusive, this number is small in comparison with the volume expected and with the rated output of the builders. Excepting 10 cars for the Long Island and 90 for the Pennsylvania ordered from the latter's shops, the remaining 1,144 are on the books of contract builders. Deliveries of new passenger cars began in September and so far this year five mail-baggage cars have been delivered to the Santa Fe, six baggage-express and two postal cars to the Central of Georgia, five baggage-express cars to the Nickel Plate and two baggage-express cars to the Western of Alabama. The cars currently on order and undelivered are listed in detail in the accompanying table. A discussion of certain features of the cars and of the trains in which they will be used follows.

The Alton will use its 15 reclining seat coaches to fill out its trains between

lined trains. Deliveries are being received on some of the equipment and the balance is expected in De-

> cember and early next year. The 21 cars listed for the Atlantic Coast Line, together with six cars ordered by the Richmond, Fredericksburg & Potomac, 12 by the Pennsylvania and six by the Florida East Coast—connections in the joint through route-all of similar design, will be used to establish a daily stainless-steel lightweight eight-car coach train between New York and Tampa and St. Petersburg, Fla., and also to expand the consist of the East Coast "Champion" to 16 cars. The trains will be powered



The Rock Island's "Rocket"

St. Louis, Mo., and Chicago, including the "Ann Rutledge," the "Abraham Lincoln" and the "Alton Limited." The cars, which will be of the latest semi-streamlined design and fully air-conditioned, with novel arrangements for passenger comfort and special features in interior arrangement and design, will employ a new design of six-wheel lightweight trucks. Deliveries are expected about May, 1946. The Alton recently received three 4,000-hp. Diesel locomotives which, with its present Diesel power, will result in the Dieselization of all of the road's feature trains between St. Louis and Chicago. All of the company's passenger equipment is being repainted the "Alton red" and maroon

with gold letterboards and gold striping. The 161 lightweight cars on order for the Atchison, Topeka & Sante Fe will be used to replace heavy equipment and to increase the consist of present stream-

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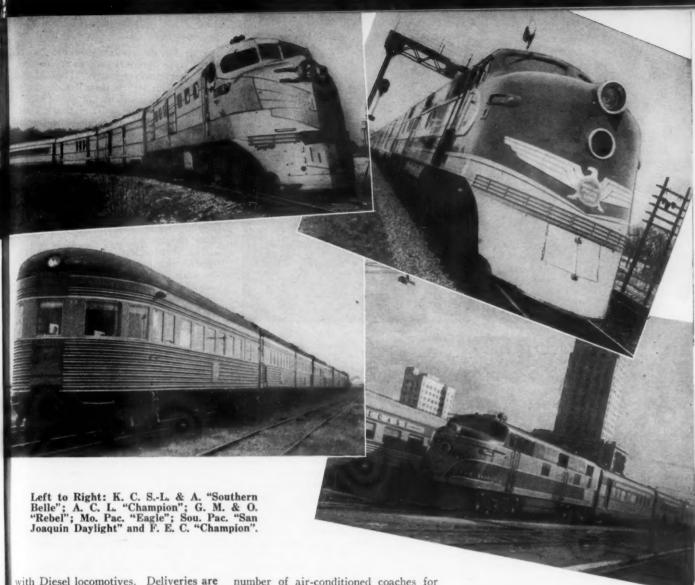
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with Diesel locomotives. Deliveries are expected this winter.

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The eight air-conditioned sleeping cars ordered by the Baltimore & Ohio will be used on the "Capitol Limited," the road's over-night train between Washington, D. C., and Chicago. Each car will have sixteen roomettes, equipped with single bed, lavatory and toilet facilities, and four double bedrooms, which will be convertible into suites. The cars are scheduled for delivery in the third quarter of 1946 and will have the standard B. & O. exterior color scheme of blue, gray and gold.

The 24 lightweight stainless steel cars ordered by the Boston & Maine and the Maine Central will cost approximately \$2,000,000. Each road has ordered eight de luxe coaches, two restaurant-lounge cars and two coach-smoking-lounge-baggage cars. The new equipment is designed for use in solid trains on the Boston, Mass., Portland and Bangor, Me., runs on such trains as the "Kenne-Pine Tree." Hauled by Diesel-electric comotives, the new trains will provide e luxe coach passenger service at coach are with a much faster schedule than at resent, both via Brunswick and Augusta and via Lewiston. The new equipnent is expected to be ready for service ate next year and will release an equal

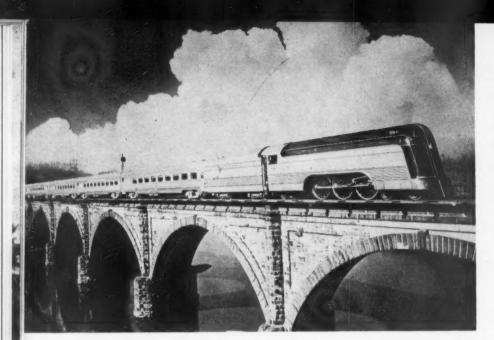
number of air-conditioned coaches for use on other lines.

The 16 coaches will have 5-ft. windows and will seat 56 in the coach and twelve in an all-glass smoking compartment which will be fitted with easy chairs and divans. The ladies' retiring room will include vanity tables, mirrors, etc., and will be located at the opposite end of the car from the men's facilities. The restaurant-lounge cars will accommodate 24 in the restaurant and 18 in parlor-car lounging seats. The coachsmoking-lounge-baggage cars will seat 36 in the coach compartment, eight in the smoking lounge and will have a 30-ft. baggage section. Ten 4,000-hp. Diesels, which can be split into 2,000hp. units on lighter trains, are on order, eight for the B. & M. and two for the Maine Central, for use on the through run over both railroads.

The Central of Georgia proposes to operate a Diesel-powered stainless-steel streamlined train consisting of one coach-baggage car, two open coaches and a tavern-observation car between Columbus and Atlanta, Ga. Deliveries of these cars are expected in the second quarter of next year. Another Diesel-powered streamlined train, consisting of one passenger-baggage car, one coach-grill and three open coaches, will be operated between Savannah and Atlanta, Ga.

Deliveries of these cars are expected in the first quarter, 1946. The other new equipment listed in the table will be used in regular trains. Among the specialties which will be included in the coaches are two toilets at each end; a novel "vanity," including wash basin; innovations of lighting; and individual rotating, reclining-type seats. The interiors will be decorated by a famous artist.

The Chesapeake & Ohio has ordered two streamlined, lightweight stainlesssteel passenger trains with which it will inaugurate a fast de luxe daylight service between Washington, D. C., and Cincinnati, Ohio. The consist of the trains has not been decided upon but it is expected that the order will comprise 30 cars, all air-conditioned. The new service, which will be operated in one-class coach-fare trains, is intended to bring the Ohio river metropolis and other principal cities in the Ohio and Kanawha river valleys into closer relationship with the nation's capital. Running time between the Queen City and Washington is expected to be 12 hours or less. The trains will be powered by a revolutionary type of coal-burning steam-turbine electric-



The Reading's "Crusader"

ally-driven locomotive, three of which are now under construction.

The Chicago & Eastern Illinois will use its 11 cars on order to make up two lightweight streamline and air-conditioned coach trains. One seven-car train will be operated between Chicago and Evansville, Ill., with a train consist of four coaches, one mail-baggage coach, a diner and a parlor-observation car and the other, a four-car train, will be operated between Chicago and Southern Illinois with a train consist of one mailbaggage-dinette (lunch-counter car) and three coaches. Diagonal seating arrangement will be built into the diner. In the dinette, the lunch counter will seat eight passengers and the lounge 12. Both trains will be Diesel-powered.

The Chicago & North Western's 20 air-conditioned coaches will cost approximately \$74,000 each or \$1,480,000. They will be used to replace the cars in the Twin Cities "400" trains operating between Chicago, St. Paul and Minneapolis. In turn, the present cars of that train will be placed in the Wisconsin and Michigan "400" trains and replace conventional equipment which it has been necessary to use in these trains because of the enormous passenger busi-

ness. The trains will be Diesel-powered. The new coaches will seat 56 in the main section and ten in the lounge room and be complete with powder room and The interiors will be toilet rooms. painted to match the seat covering and floorings in each car, the color schemes being green, blue and tan. The exteriors will match the present equipment, yellow being applied to the sides and green to the roof, skirt and letter gear. The railroad has a prospective five-year plan under which it hopes to purchase a certain amount of equipment each year, including passenger cars, and is giving consideration to the type of passenger equipment necessary and to the territory in which it will be operated.

The Chicago, Burlington & Quincy has 56 new cars on order. Included are a 12-car "Empire Builder," the Burlington's share of the five trains required to streamline the Chicago-Pacific northwest service operated with the Great Northern; five stainless-steel baggage and mail cars to complete the streamlining of the Burlington's daytime "Zephyr" service between Chicago and Omaha, Neb., and Lincoln; and two completely new sets of equipment for the Chicago-Twin Cities "Zephyrs," which will be

the first trains to embody the "vista dome" type of observation rooms in each passenger carrying car. The 12-car "Empire Builder" is described in detail hereinafter in a discussion of the Great The new Northern's orders. Zephyrs will be of stainless-steel construction and each will consist of a combination Laggage and buriet car, four chair cars, a diner and a parlor-lounge car. Each of the chair cars and the parlor-lounge car will contain "vista domes"-raised glass enclosed observation rooms from which passengers can enjoy an unobstructed view of the Burlington's route along the upper Mississippi river.

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The Burlington also has ordered, jointly with the Denver & Rio Grande Western and the Western Pacific, six stainless steel trains for operation next year between Chicago and San Francisco, Calif. Each train, to be made up of ten cars with Diesel power, will be operated by the three railroads under the name of "California Zephyr." The types of cars ordered have not been disclosed, but it is reported unofficially that the Burlington will acquire 25, the D. & R. G. W. 13 and the Western Pacific 22. The total investment for cars and locomotives will be approximately \$10,500,000.

These new trains will embody the most recent developments in design and construction, including cars with the "vista dome," to afford sleeping-car and coach passengers full enjoyment of the scenic features of the Colorado Rockies and the 116-mile Feather River Canyon in California. The trains will be operated on daily schedules which will provide for daylight operation on the scenic portions of the route.

The 20 lightweight, air-conditioned cars ordered by the Florida East Coast will cost approximately \$1,700,000. Deliveries of the 11 coaches are expected in March and April, 1946, and of the other nine cars in June and July. The railroad proposes to assign six of the cars to the through streamline coachtrain service between New York and Florida points and fourteen to local operations between Jacksonville and Miami, Fla.

The 48 cars to be built for the *Great Northern*, together with the 12 identical cars ordered by the Burlington, will go



The Chicago & North Western's "400" Leaving Chicago for the Twin Cities

826

Passenger Cars on Order for Domestic Service, November 1, 1945

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Railroad	Number	Type	apacity	Builder
Alton Atchison, Topeka & Santa Fe	15AC	Coach Postal	3.5	Amer. Car & Fdy. Amer. Car & Fdy. Amer. Car & Fdy.
	18 16AC	Mail-Bag, Coach	52	Amer. Car & Fdy. Budd
	16AC	Lunch CtrDiner Lounge-Dorm.	38	Budd
	6AC 46AC	Lounge-Dorm.	42 52	Budd Pullman-Standard
	BAC	Club-Lounge Sleeping		Pullman-Standard
Atlantic Coast Line	49AC 9AC	Sleeping Coach	56	Pullman-Standard Budd
The court wife	3AC	Coach		Budd
	2AC 1AC	Diner Lounge	18	Budd Budd
	3AC	BagDormLounge	14	Budd
Baltimore & Ohio	3AC 8AC	Lounge-Obs.	47 24	Budd Pullman-Standard
Bangor & Aroostook	1	BagExp.		Amer. Car & Fdy.
Boston & Maine	8AC 2AC	Coach-Smoking Restaurant-Lounge	68 42	Pullman-Standard Pullman-Standard
	2AC	Coach-SmokLnge-Bag.	44	Pullman-Standard
Central of Georgia	1AC 2AC	Coach-Bag.	44 56	Budd Budd
	1AC	Tavern-Obs.	57	Budd
	1AC	Passenger-Bag.	56	Amer. Car & Fdy. Amer. Car & Fdy
	4AC	Coach-Grill	68	Amer. Car & Fdy. Amer. Car & Fdy.
Chesapeake & Ohio	4AC 30AC ¹	Coach	56	Amer. Car & Fdy. Budd
Chesapeake & Ohio Chicago & Eastern Illinois	7AC	Unspecified Coach	60	Pullman-Standard
	1AC	Coach-Mail-Bag	4()	Pullman-Standard Pullman-Standard
	1AC	Diner Parlor-Obs.	28	Pullman-Standard
Chicago & North Western	1AC 20AC	Mail-BagDinnette Coach	20	Pullman-Standard Pullman-Standard
Chicago, Burlington & Quincy	3AC	Coach	48	Pullman-Standard
	1AC 1AC	Coach CoffShKitDorm.	60	Pullman-Standard Pullman-Standard
	1AC	Diner	48	Pullman-Standard
	3AC 1AC	Sleeping Bedroom BedLounge	24 22	Pullman-Standard Pullman-Standard
	1AC	BedLounge	35	Pullman-Standard
	3	BagMail		Pullman-Standard Budd
	2	Baggage BagMail	4.5	Budd
	2 2	BagClub Lounge	36 52	Budd Budd
			24 (dome)	
	E	Coach	54 24 (dome)	Budd
	2	Diner		Budd
	258	Diner Parlor-Lounge Unspecified	32	Budd Budd
Chicago, Rock Island & Pacific	27AC	Coach		Pullman-Standard
	SAC 2AC	Sleeping Parlor		Pullman-Standard Pullman-Standard
	2AC	Parlor-BuffObs.		Pullman-Standard
	1AC 4AC	Coach-Parlor-Obs.		Pullman-Standard
	3AC	Lunch ctr. Diner		Pullman-Standard Pullman-Standard Pullman-Standard Pullman-Standard Pullman-Standard Pullman-Standard
	3AC 1AC	Bedroom-Lounge DormBag.		Pullman-Standard
	3	Postal-Bag.		Pullman-Standard
Denver & Rio Grande Western	2 13 ²	Baggage Unspecified		Budd
Florida East Coast	11AC	Coach	56	Budd
	3AC	Passenger-Bag.	14	Budd
	3AC 3AC	Diner Lounge-Obs.		Budd Budd
Great Northern	12AC	Coach Coach	48	Pullman-Standard
	4AC 4AC	Coff. ShKitDorm.	60 47	Pullman-Standard Pullman-Standard
	4AC	Diner	48	Pullman-Standard
	12AC 4AC	Sleeping Bedroom	22	Pullman-Standard Pullman-Standard
	4AC	RedLounge	35	Pullman-Standard
Illinois Terminal	83	BagMail M. U. Coach		Pullman-Standard St. Louis Car
Long Island	5	D. D. Motor Coach D. D. Trailer Coach	136	Company Shops Company Shops Amer. Car & Fdy. Amer. Car & Fdy. Amer. Car & Fdy.
Louisville & Nashville	5	D. D. Trailer Coach	136	Amer. Car & Fdy
STANDAME OF TABLIAME	4AC	Coach Coach	5.30	Amer. Car & Fdy.
Maine Central	8AC 8AC	Dining Coach-Smoking Restaurant-Lounge Coach-SmokLnge-Bag.	48 68 42 44	Pullman-Standard
	2AC	Restaurant-Lounge	42	Pullman-Standard
Minneapolis & St. Louis	2AC 6AC	Coach-SmokLnge-Bag. Coach	44 56	Pullman-Standard Budd
Missouri-Kansas-Texas	1	Mail-Baggage		Pullman-Standard
	3AC 1AC	Chair Chair-Lounge-Buff, Diner		Pullman-Standard Pullman-Standard
	1AC			Pullman-Standard
	7AC	Slanning		Pullman-Standard Pullman-Standard Pullman-Standard
Missouri-Pacific		Lounge-Buff. Obs.	56	Budd
	4AC	Coach Mail. Rag	64	Budd Amer. Car & Fdy.
	1	Bag. Exp.		Amer. Car & Fdy.
	5AC 7AC	Coach (Divided)	52 64	Amer. Car & Fdy. Amer. Car & Fdy.
	5AC	Mail-Bag. BagExp. Coach-Dorm. Coach (Divided) Coach Diper	66	Amer. Car & Fdy.
	1AC 5AC	Diner Diner-Lounge Mail-Bag. Coach-Grill	44 42	Amer. Car & Fdy. Amer. Car & Fdy.
	2	Mail-Bag.	***	Amer. Car & Fdy.
	2AC 6AC	Coach-Grill	52 64	Amer. Car & Fdy. Amer. Car & Fdy.
	28AC	Coach Sleeping	51	Pullman-Standard
New York Central	153AC 20AC	Coach-Bag.	07	Pullman-Standard Amer. Car & Fdy.
	60AC	Coach	56	Budd
	13AC 13AC	Tavern-Lounge Parlor-Obs.	27	Budd Budd
Footnotes on next page				
	Table	continued on next page		-
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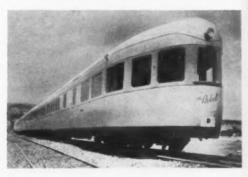
Rear View of the "Eagle"



Burlington "Denver Zephyr"



Illinois Central "City of Miami"



Rear View of the "Rebel"



Santa Fe "Super Chief"

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Passenger Cars on Order for Domestic Service, November 1, 1945

Railroad	Number	Туре	Seating Capacity	Builder
New York Central (cont'd)				
	4AC	Tavern-Lounge-Obs	. 21	Budd
	18AC	Grill		Budd
	9AC	Diner (Standard)	44	Budd
	4AC	Diner (Full-Length)	64	Budd
	4AC			Budd
		Kitchen-Lounge		
N 41 D 10	2AC	DormBag		Budd
Northern Pacific	36AC	Coach	. 64	Pullman-Standard
Pennsylvania	12AC	Coach		Budd
	10AC	Coach	. 52	Budd
	70AC	Coach		Company Shops
	5AC	Diner		Company Shops
	5AC	Kitchen-Employes		Company Shops Company Shops
		I man Duffet Dom		Company Shops
	5AC	LngeBuffet-Bag		Company Shops
D 3/	SAC	LngeBuffet-Obs.		Company Shops Pullman-Standard
Pere Marquette	2AC	Diner-Lounge		Pullman-Standard
	4AC	Coach-Lounge	. 63	Pullman-Standard
	4AC	Coach-Lounge-Obs.	. 68	Pullman-Standard
	2	BagExp.		Pullman-Standard
	2	Mail-Exp.		Pullman-Standard
Dishard Parishdaham 0	_			
Richmond, Fredericksburg &	640	0 :		
Potomac	6AC	Coach		Budd
	8AC	Coach	. 52	Budd
	4AC	Coach	. 70	Amer. Car & Fdy.
	1AC	Parlor-Cafe	. 22	Amer. Car & Fdy.
St. Louis-San Francisco	1	Mail-Baggage		Pullman-Standard
	2AC	Chair		Pullman-Standard
	1AC	Chair-Lounge		Pullman-Standard
	1AC	Diner		Pullman-Standard
	6AC	Sleeping		Pullman-Standard
	1AC	Lounge-Obs.	* * *	Pullman-Standard
	1			Pullman-Standard
	4AC	Mail-Baggage		
		Chair		Pullman-Standard
	1AC	Chair-Dorm		Pullman-Standard
	5AC	Sleeping		Pullman-Standard
	1AC	Diner-Lounge-Obs		Pullman-Standard
Seaboard	12AC	Coach	. 52	Budd
	9AC	Diner	. 48	Budd
	6AC	Tavern-Obs.	. 63	Budd
	3AC	BagCrew Dorm		Budd
Texas & Pacific	3	Baggage		Amer. Car & Fdy.
Acous & Amenic	1	Mall Dag		Amer. Car & Fdy.
	4	Mail-Bag.		Amer. Car & Fdy.
		BagExp.		
	4AC	Coach-Dorm.	. 52	Amer. Car & Fdy.
	8AC	Coach (Divided)		Amer. Car & Fdy.
	3AC	Coach		Amer. Car & Fdy.
	1AC	Dining	. 44	Amer. Car & Fdy.
K.	3AC	Diner-Lounge	: 42	Amer. Car & Fdy.
	6AC	Sleeping	. 23	Pullman-Standard
	1AC	Sleeping-Lounge	40	Pullman-Standard Pullman-Standard
	1AC	Sleeping	. 26	Pullman-Standard
	3AC	Bedroom-Lounge	30	Pullman-Standard
	8AC			Pullman-Standard
*** 1 1		Sleeping		
Wabash		Baggage		Amer. Car & Fdy.
	2	Coach-Smoker		Amer. Car & Fdy.
	1	Coach-Buffet		Amer. Car & Fdy.
	1	Diner		Amer. Car & Fdy.
	1	Chair-Obs.		Amer. Car & Fdy.
	î	BagMail		Amer. Car & Fdy.
Western Decide	_			
Western Pacific	228	Unspecified		Budd

AC—Indicates cars will be air-conditioned.

¹ Order comprises equipment for two trains, the consist of which has not been decided upon.

² The Chicago, Burlington & Quincy, Denver & Rio Grande Western and Western Pacific have ordered 60 cars for joint operation between Chicago and San Francisco. The types of cars ordered have not been disclosed and the number to be purchased by the three railroads as allocated above is not official.

³ Four 2-car units.

into five complete streamlined trains to operate between Chicago and the Pacific northwest. These will bear the "Empire Builder" name as do the currently operated trains which they will replace. The consist of each train will be 12 cars as follows: three 48-passenger coaches, one 60-passenger coach, one coffee-shop-kitchen-dormitory car, one diner, three sleeping cars, one bedroom car, one bed-

room-lounge car, and one baggage mail car. Deliveries of the new cars are expected to be completed by June 30, 1946. The cost of the five trains is estimated at about \$5,000,000, or \$1,000,000 each, exclusive of motive power. Diesel-electric locomotives will haul the trains, which will run on a 45-hour schedule between Chicago and Seattle, Wash. The "Empire Builder" now has a run-

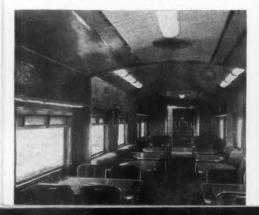
ning time of 58 hours 45 minutes between Chicago and Seattle and 57 hours 10 minutes for the eastward trip.

The ten double-deck commuter cars authorized by the Long Island for con-struction in the Pennsylvania's shops will cost approximately \$900,000. Embodying also certain improvements, they will be built to the general specifications of the two coaches placed in operation in 1937, five years after the road's original experimental double-decker. The cars are constructed with two tiers of seats at different levels, each with its own row of windows, and accommodate 136 passengers, as compared with 80 in the road's regular coaches. The seats of the lower tiers have their floors 14 inches below the common center aisle and are reached by a step down. The upper tiers' seats are placed above them and are reached by a step up. Constructed of aluminum, of 80-ft. overall length, the motor-equipped double-decker weighs 90,000 lb. and the trailer 80,000 lb., as compared with 114,000 lb. for the company's 64-ft. standard coaches. Long Island brings 16 trains into Pennsylvania station, New York, within 15 minutes during the morning rush hour. At peak hours trains cannot be operated on closer headway, and no cars can be added because of the established signal system and length of platforms.

The Missouri-Kansas-Texas has ordered a 12-car streamlined train which, with an identical streamlined train ordered by the St. Louis-San Francisco, will replace the present equipment of the "Texas Special," operating between St. Louis, Mo., and San Antonio, Tex., via Dallas with auxiliary service to and from Fort Worth. The two trains will be completely air-conditioned and each will consist of a mail-baggage car, two chair cars, a chair-lounge, a diner, six sleeping cars featuring roomettes and bedrooms, and a lounge-buffet-observation car. In addition, the M-K-T has ordered one chair and one sleeping car as "spares" for emergency use. Definite details of seating capacity, sleeping space, interior decorations and other distinctive features are still being considered, but the railroads report that the new "Texas Special" will embody the newest mode in decorations and in innovations calculated to enhance the comfort and convenience of travelers. The trains will be powered by 4,000-hp. Diesel-electric locomotives.

The majority of the 72 cars ordered by the Missouri Pacific will be used in

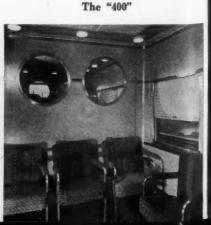
N. Y. C. "Empire State Express"



The "Eagle"



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new streamlined Diesel-powered "Sunshine Eagle" trains which will replace the present "Sunshine Special" conventional equipment between St. Louis, Mo.-Memphis, Tenn., and Texas destinations, including through sleepers to Lake Charles and Shreveport,

La., and El Dorado, Ark.; and in new streamlined Die-sel-powered "Valley Eagle" and "Nueces Eagle" trains between Houston, Corpus Christi and Brownsville, Tex., replacing present conventional equipment. The balance of the cars will be used to supplement equipment in existing streamlined trains. The "Sun-shine Eagle" trains will be composed of both Pullman and coach equipment and are described more fully hereinafter in comments on the Texas & Pacific's orders. The "Valley Eagle" and "Nueces Eagle" will be all - coach trains. The new trains will operate on accelerated sched-The approximate cost of the streamlined equipment ordered is \$6,700,000.

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Largest order listed is the New York Central's for 300 air-conditioned cars on which deliveries are expected sometime next year. The railroad reports that no definite assignment of this equipment has been made, excepting that some will be substituted for equipment in its principal existing trains and others used to make up new trains which are under consideration. As steam locomotives constitute

the bulk of the company's motive power, these probably will be used on the contemplated new trains. The railroad also has requested bids by November 17 for new equipment for 14 passenger trains. A total of 214 cars of various types are involved in this inquiry, including sleepers

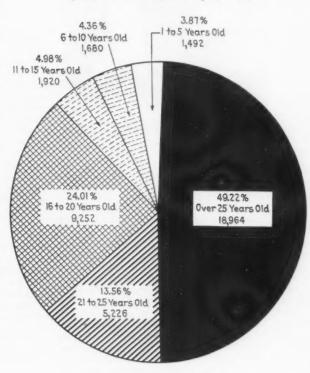
The Pennsylvania's 90 new air-conditioned passenger cars to be built in its Altoona, Pa., works have been styled by Raymond Loewy, industrial designer of New York, and designed by a special research committee of the railroad. They will be used to re-equip completely the "Trail Blazer" and the "Jeffersonian," over-night luxury coach trains between New York and Chicago and between New York and St. Louis, Mo. The new cars will be built of high tensile steel. Deliveries are scheduled to begin early in 1946. The Pennsylvania also has on order 22 coaches for joint service with other railroads operating between New York and the South.

At present the *Pere Marquette* operates two round trips daily (one on Sunday) between Detroit, Mich., and Grand Rapids, a distance of 152 miles. The milroad will use its 14 cars currently on order to make up two new trains, with which it proposes to operate three found trips on week-days between these two points, on schedules substantially horter than those now in effect. Two

2,000-hp. Diesel locomotives, scheduled for delivery in December, will furnish power for these two trains. The 14 cars are scheduled for delivery about May 1, 1946. The approximate cost of the cars and locomotives is \$1,470,000.

Age of Passenger Train Cars in the United States

(Class I Railroads, January 1, 1945)



Total Owned-38,534

The coaches will have individual reclining-type seats. The observation cars will have lounge, toilet and luggage compartment facilities at the opposite end and the other coaches will be equipped with a public lounge at one end and women's lounge, toilet and luggage facilities at the other end, with a seating capacity of 54 in the main section,

The kitchen and pantry of the diners will be in the center of the car with a dining table section for 22 on one side and for 26 on the other. Diagonal seating arrangements will be used. Color scheme of the locomotives and cars will be maize blue.

Of the Richmond, Fredericksburg & Potomac's fourteen coaches now on order with Budd, which will cost approximately \$1,150,000, six will be used in the regular streamlined passenger trains operated between New York and Florida points jointly with the Pennsylvania, Atlantic Coast Line and Florida East Coast, and eight will be used in the "Silver Meteors" in the New York-Florida service operated with the Pennsylvania and the Seaboard.

The four coaches and one parlor car, ordered from American Car & Foundry at a cost of about \$400,000, will be used as a new lightweight five-car train which will make two daily round trips between Richmond, Va., and Washing-

ton on a running schedule of slightly over two hours. The train is expected to be ready for service early next summer.

Each of the four coaches will provide separate seats for 70 passengers

and in one end of each coach a clear glass partition will cut off 18 of these seats where men and women may smoke together in air-conditioned comfort. The modern cafe-parlor car will provide meals and also will contain 22 reserved seats to be sold at the customary parlor car fares.

The new train will leave Richmond about 7:30 a.m. in time for a forenoon business appointment in Washington and will leave Washington returning around noon. Leaving Richmond again in midafternoon the final return trip will be from Washington about 8:30 p. m., connecting with the "Congressional Limited" which leaves New York at 4:30 p. m. The R. F. & P. also is planning improvements in others of its trains. Schedules are to be quickened and the equipment placed in first-class condition just as soon as this can be undertaken, but passenger travel, at present requiring about 55 trains per day, is still so heavy that cars cannot now be spared from the trains to go into shops.

The 24 cars ordered by the Frisco Lines include a 12-car streamlined train which, with an identical train ordered by

the Missouri-Kansas-Texas, will replace the present equipment of the "Texas Special" and two complete sets of streamlined equipment to replace the present "Meteor" operating between St. Louis, Mo., and Oklahoma, Okla. Like the "Texas Special," all equipment for the "Meteor" will be air-conditioned, with the exact seating capacity for the chair cars and distribution of sleeping space in the sleeping cars yet to be determined. The railroad has ordered three 4,000-hp. Diesel-electric locomotives, one for each of the three trains. When the new equipment and power is received for the "Texas Special" and "Meteor," both trains will operate on greatly reduced schedules between respective termini.

The 30 cars listed for the Seaboard will be used, together with ten 52-passenger coaches purchased by the Pennsylvania and eight by the R. F. & P. to equalize mileage, to replace the present cars in the "Silver Meteors" in the New York-Florida service operated by these three companies. Sleeping cars probably also will be put on the trains. Deliveries of the cars are expected early in 1946. The total cost will be approximately \$4,500,000.

All of the cars will be built of stainless steel and completely air-conditioned. The coaches will feature seats with a tilt-back mechanism to make them more comfortable for relaxing and for over-night sleeping, adjustable foot rests, wide windows, improved lighting, spacious rest rooms, a public address system and radio, and facilities for parcelchecking of baggage in a compartment at the end of each car. Along with other improvements, there will be complete electrical refrigeration in the diners which will provide 30 per cent more refrigeration space for perishable food storage and save the time required for icing enroute. The full-length tavernobservation car is a new type for the Seaboard. In the present trains, the tavern section occupies space in a regular coach near the center of the train. while the observation section is in the rear of the last car. The new car will contain a bar of ultra-modern styling in the center, informally arranged seating accommodations for 38 patrons in the forward end and 25 individual seats in the rear or observation section.

The baggage-dormitory car also is a new type for the road. The baggage section will contain shelving along both walls to prevent piling or stacking of baggage and the resultant risk of damage. The capacity will be approximately 25 per cent greater than obtained in the present combination baggage-passenger cars. The dormitory section will have 20 berths for the dining car crew and car attendants and be equipped with complete toilet facilities, including showers. There also will be a private office for the train conductor and bedroom-type accommodations for the passenger service agent and dining car stewards. Two separate "Silver Meteors" will

continue to operate on high-speed schedules, one between New York and Miami, Fla., the other between New York and St. Petersburg, Fla. They will be powered by electric locomotives on the Pennsylvania and by Diesel-electrics for the balance of the journeys. Displaced equipment from the present "Silver Me-Displaced teors" will be assigned to other service.

The Texas & Pacific now has on order (jointly with the Missouri Pacific lines) new streamlined air-conditioned passenger cars for three trains to operate from St. Louis, Mo., Memphis, Tenn., to El Paso, Tex., via Little Rock, Ark., Texarkana, Dallas and Ft. Worth, Tex. The trains will be known as "The Sunshine Eagle," and will be powered by new 4,000-hp. Diesel-electric locomotives. In addition to the service from St. Louis, one divided de luxe coach and one sleeping car from Memphis will be added to the train westbound at Little Rock and will make a total of 11 cars in the train into Ft. Worth, consisting of one baggage-express, one mail-baggage, one coach-dormitory, two de luxe coaches, four sleepers, one diner, and one sleeper-lounge. At Ft. Worth two sleeping cars will be removed from the train which will operate westward with nine cars.

Service from New Orleans, La., to Ft. Worth will leave New Orleans so as to make connections with the "Sunshine Eagle" at Ft. Worth. These trains, which will be operated daily as the "Louisiana Eagle," will require two sets of equipment. They will be owned and



Santa Fe "El Capitan"

operated solely by the Texas & Pacific. Each train will consist of one baggageexpress, one mail-baggage, one coachdormitory, two divided de luxe coaches, one diner-lounge, and three sleeping cars, out of New Orleans, with one

sleeper being set out at Shreveport, La. The present plans call for an overall reduction of 40 per cent in the time now required from St. Louis to El Paso. A similar reduction in time is planned for the New Orleans-Ft. Worth train. The cars will cost an average of \$90,000 each and the 4,000-hp. locomotives approximately \$350,000 each. The total cost of one 11-car train, including the mo-tive power, will be \$1,300,000 and the entire program will involve an expenditure of \$5,500,000 by the Texas & Pa-

Details of car construction are now being worked out by the builders and the railway companies. Six of the sleeping cars listed will have four sections, eight roomettes, two bedrooms and one drawing room; eight will include four sections, eight duplex roomettes and four bedrooms; and one will be made up of six open sections, six roomettes and

four bedrooms. The sleeper-lounge will comprise five bedrooms and soda fountain and seat 30 in the lounge and the bedroom-lounge will have two bedrooms, a drawing room and 15 seats in the

Total Passenger Cars

At the beginning of this year there were 46,981 passenger-train cars in service in the United States, of which 17,840 were coaches, 2,787 coach combinations, 1,569 diners, 543 parlor, clublounge, observation and sleeping combinations, 8,452 sleepers, 1,732 postal, 13,343 baggage, express and other nonpassenger cars and 716 other type cars. This was 18,769 fewer than were oper-

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ated in 1926, peak year of the 1920's.

Of the total, 38,534 cars were owned by
Class I railroads. Of these latter, 18,-964 or 49.2 per cent were over 25 years old, 5,226 or 13.6 per cent 21 to 25 years old, 9,252 or 24 per cent 16 to 20 years old and 5,092 or 13.2 per cent one to 15 years old. (See chart.)

Although on the average already well aged, the car inventory has been out-moded even beyond its years by the rapid depreciation and deferring of maintenance that necessarily resulted from the unprecedented heavy traffic of the war years and by new developments in construction materials and techniques, improvements in car trucks and the revolution in interior arrangements. The modern lightweight streamliners developed since 1930 have quickened the obsolescence of older cars both from the standpoint of operating economy as well as customer appeal.

Contributing to this obsolescence is the modern trend toward air-conditioning which, since its introduction about 1929-30, perhaps has done more to promote and popularize railroad travel than any other single factor. In addition to increasing traveling comfort, air-conditioning has permitted innovations in materials, design and coloring in the interior by sealing the cars against smoke, dust and cinders.

Year	Railroad Shops	Contract Builders	Pullman Company	Express Refrigerator & Milk	Tot
Averages	37	678	185	130	1,03
1944 1943 1942 1941 1940	31	740 1,720 - 4 318 311 194	197 53	::	1,72 54 31 31
1938 1937 1936	82 40 50	102 243 397 55	125 84 171 1	110	20 50 44 12
1934	5	318 11 32 5 486	102	2	6
1929 1928 1927 1926 1925 1924 1923	84 133 86 62 44 49	1,176 980 1,293 1,321 1,527 1,582 1,064	550 244 118 519 479 701 424	505 930 45 85 90 372 673	2,31 2,28 1,54 1,98 2,14 2,70 2,19
1922 1921 1920	1	1,843 157 1,082	300 100 458	245 50 40	2,42 30 1,61

Source.-American Railway Car Institute.

Passenger-Train Cars Ordered, 1920-1944

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Railway Age—November 17, 1945

Who Will Operate Sleeping Cars?

Four separate proposals advanced for attaining solution of a knotty problem

JUST one week after the Federal District Court in Philadelphia, Pa., ordered Pullman, Inc., to report to the bench by December 3 its choice of the four purchase offers for the \$75 million Pullman Company sleeping car services, the parent company on November 13 announced it had selected the offer of the 27 railroads. No mention was made of the other three bidders, and through counsel, former Senator George Wharton Pepper, Pullman, Inc., asked approval of the court to complete the

As previously reported (see Railway Age of November 10, page 758), the special expediting court, composed of Senior Circuit Judge John Biggs, Jr., presiding, and Circuit Judges Albert B. Maris and Herbert F. Goodrich, will, on December 10, make known their opinion as to the group best complying with the court's decree of March 22, 1945. Oral argument of all interested bidders, including Otis & Co., Glore, Forgan & Co., and the Standard Steel Spring Co.

group, may be presented at that time. On November 7, following the two-day hearing of all four offers, the railroad group agreed to meet the Pullman, Inc., proposals of last-May 12. This represented a modification of their pur-chase offer of October 27, which had stipulated certain exceptions to Pullman's offer of sale, having to do with methods of computation of the amount of depreciation and deferred maintenance." Pullman, Inc., had refused to accept these additional allowances, and the railroads now have agreed to meet the Pullman price of about \$75 million, all differences being settled. Pullman, Inc., was advised of the railroad decision in a letter from F. G. Gurley, president, Atchison, Topeka & Santa Fe, Gustav Metzman, president, New York Central System, and Ernest E. Norris, president, Southern Railway, acting on behalf of the bidding group, "or any railroads who may hereafter elect to become members." Mr. Pepper spoke of the railroads' acceptance as an "executory contract of sale."

The Issue Before the Court

At the November 5 and 6 hearings (Railway Age, November 10, page 758) Pullman counsel had questioned the right of the court to choose the actual purchaser, declaring it the court's business only to put an end to an alleged monopoly, insuring that Pullman "should once and for all retire from the sleeping car business."

The Otis group, principally in testimony of Robert R. Young, chairman of

the board of the Alleghany Corporation, and Carl E. Newton, president of the Chesapeake & Ohio, had implied the possession of the Pullman sleeping car services by the railroads would be detrimental to the interests of the smaller roads. Mr. Young claimed his group, were it to acquire title to the business, would be "prepared to organize a progressive pool service for the benefit of all the railroads and the country," would promote travel, and would spend something like half a billion dollars for new streamlined equipment to replace "obsolete cars."

History of the Case

The original anti-trust suit against Pullman, Inc., was filed by Thurman Arnold, then assistant attorney-general, on July 12, 1940, and re-filed in amended form on July 22, 1941. The first hearings began in the U. S. District Court at Philadelphia, Pa., on November 3, 1941, before a special three-judge "expediting" court. This followed a pre-trial conference of the parties concerned held in Philadelphia on October 2, 1941.

After the government had called 16 witnesses, the trial was postponed on November 18 until March 2, 1942. There was, however, a further delay because of the government's suggestion that antitrust suits against companies engaged in war activities be called off, and the trial was not resumed until June 1, 1942. The resumption was at the request of the defendants, who preferred to have the case concluded without further delay. The defense witnesses, including David A. Crawford, president of Pullman, Inc., occupied the stand for several weeks and the hearings were again adjourned on July 1, 1942. The government's case was based on alleged monopoly, although some of the government's own witnesses stated categori-cally that the Pullman Company was an ideal agency for operating sleeping cars. The trial was resumed in January, 1943, and again adjourned on February 1.

On April 20, 1943, the court handed down its opinion holding "there has been a violation of the Sherman Act," and stating that "the formulation of a decree will await further discussion and hearing upon certain points which may be suggested by both parties." Pullman, Inc., immediately announced that an appeal would be taken.

On May 8, 1944, a decree was entered directing Pullman, Inc., to separate its car-operating and car-building subsidiaries. Freedom of choice as to which should be retained was given, and rather than lose this privilege, the board of

directors decided not to appeal. In July it was decided to retain the car-building company and dispose of the car-operating business. On August 12 President Crawford announced that negotiations had been opened for the sale of the sleeping car business to the railways and on August 30, 1944, a circular letter was addressed to the railways using Pullman sleeping car service listing the tangible properties proposed for sale at a total price of \$81,325,222. On October 2, Pullman, Inc., officially notified the court that it had elected to sell its sleeping car business and outlined a plan for disposing of its properties to the railways. Meanwhile, the Pennsylvania Railroad stated that it intended to operate its own sleeping and parlor cars.

Wendell Berge, the new assistant attorney-general, had been doing quite a job of tub-thumping as to the Pullman "monopoly" and, on February 19, 1945, he caused to be filed a "plaintiff's response to the plan for the separation of the sleeping car business from the manufacturing business" in which he asked the court to reject Pullman's plan for the separation.

Negotiations for Sale

The objections set forth in the plaintiff's response to the plan came on for hearing before the court on March 19, 1945, and on March 22, 1945, the court entered its interim order which provides that Pullman, Inc., may cause the Pullman Company to offer to treat with the railroads or any other persons for the sale of the sleeping car business and the properties connected therewith now owned by the Pullman Company; and also that Pullman, Inc., may also treat with the railroads or with any other persons for the sale of all the shares of stock owned by it in the Pullman Company.

The order also provides that any contract or contracts of sales either for the tangible sleeping car properties or the capital stock of the Pullman Company should be subject to the approval of the court and to such requirements, if any, which may be determined by the court under the jurisdiction reserved by it in the final judgment entered on May 8,

Further Provision

The order also provides that Pullman, Inc., shall have one year from the date of this order within which to contract to sell its stock in the Pullman Company, or to cause the Pullman Company to contract to sell the sleeping car

business and the properties connected therewith and to submit to the court the proposed contract or contracts for any such sale, with the transfer of title or possession to be made at such time as the court may determine and on which contracts all interested parties shall have a right to be heard.

On May 12, 1945, Pullman, Inc., made a proposal to the railways as a group to purchase the capital stock of the Pullman Company on the same over-all basis of valuation as that which was set forth in the letter of August 30, 1944, for the sale of the tangible properties.

The Otis Proposal

Otis & Co., a Cleveland investment house with which Robert R. Young, chairman of the Chesapeake & Ohio, and Allan P. Kirby, president of the Allegheny Corporation, are associated, filed a motion to intervene with the court on August 27, 1945. On October 5, 1945, Otis & Co. proposed to purchase all sleeping car facilities of Pullman for the sum of \$75 million (\$5 million for shops, laundries, etc.; \$15 million for working capital, including supplies; \$20 million for the fleet of 6,250 heavyweight cars; and \$35 million for the 600 new lightweight cars). Thurman Arnold, who, as assistant attorney-general, prepared the original suit against Pullman, was one of the attorneys for the petitioner.

The brief guaranteed the continuance of existing contracts with the railways and full protection to employees. It also went into considerable detail as to plans for "modernizing service and equipment," stating that lounge and recreation cars of all sorts would be included in the operation. Mr. Young presided at a press conference staged by the Otis group in Philadelphia at the time the proposal was filed. (See Railway Age, September 1, 1945, page 370.)

Glore-Forgan Proposal

On October 13, Glore, Forgan & Co., a Chicago investment banking firm, filed with the court an offer to purchase all the capital stock of the Pullman Company. It proposed to pay the difference between the assets and the liabilities of the company. The stock would be offered for public distribution following the purchase. The rights of labor in its relation with the Pullman Company would be protected, the proposal stated.

The Rockwell Proposal

On October 26, a formal offer of purchase was made by the Standard Steel Spring Company, Coraopolis, Pa., a manufacturer of automotive parts and one of a group of companies headed by Willard F. Rockwell of Pittsburgh. The offer is based upon the acquisition of assets of the Pullman Company at a price of \$40 million. The offer contemplates the purchase by the railways, under existing options, of the modern lightweight cars now owned by Pullman at an estimated price of \$35 mil-

lion. The proposal is contingent upon the continuation of service contracts with the railways.

The purchase would be underwritten by a group of banks headed by the First National of Chicago and including the Bankers Trust of New York, Union Trust of Pittsburgh, National Bank of Detroit and others having banking connections with the Standard Steel Spring Company. Under the plan the Pullman Company would become a wholly owned subsidiary and no stock would be offered to the public.

The Railways' Proposal

Railroads over whose lines more than 80 per cent of all the sleeping car service in the United States is operated made an offer to Pullman, Inc., on October 27, to buy all the capital stock of the Pullman Company. The offer was submitted to D. A. Crawford, president of Pullman, Inc., in a letter from W. F. Place, vice-president, finance, New York Central, acting as agent on behalf of the group of railroads making the offer. Tender of the offer was made at Chicago by Fred G. Gurley, president, Atchison, Topeka & Santa Fe, one of three railroad executives designated by the group of railroads as a committee to act for them in consummating the purchase of Pullman stock subject to the approval of the court. The two other executives on the committee are Gustav Metzman, president, New York Central, and Ernest E. Norris, president, Southern.

Railroad-Owned Cars

The plan proposed would enable all railroads to acquire ownership of sleeping cars regularly assigned to their lines and permit each railroad ultimately to conduct its own sleeping car operations with its own forces, or to contract for the performance of such services; also to acquire an interest in a pool of sleeping cars from which each would draw to meet seasonal demands and special movements. The proposal of the railroad group provides that the servicing of sleeping cars may be handled ultimately by an independent corporation on such terms as will provide an incentive for the best possible service to the public.

The offer, which contemplates purchase for cash, is made for the collective account of all railroads which may care to participate. It constitutes an acceptance, with modifications in certain respects, of a proposal previously made by Pullman, Inc., to sell the stock of the Pullman Company held by it which was based on a valuation slightly under \$75 million. Individual railroads on whose lines the new-type lightweight sleeping cars are in operation would acquire such cars prior to purchase of the stock. The modifications sought by the railroads in the proposal of Pullman, Inc., with respect to purchase price have to do with methods of computation of the amount of depreciation and deferred mainte-The purchase by the railroads nance. contemplates continuance of existing labor agreements with Pullman employees.

The railroads propose to continue the Pullman Company to serve railroads desiring its services on a non-discriminatory basis, and not later than December 31, 1948, it will be changed into a purely service company which will assure the continuance of the so-called "hotel servicing" of sleeping cars for all railroads that desire such services and will also supply available pool sleeping cars as individual railroads require them. It is also proposed to dispose of the revised company to independent interests.

The proposal of the railroads is subject to ratification, confirmation, or authorization by the respective boards of directors of the interested railroads, some of which have already given such authorization, and is subject to approval of the district court of the United States and to such approval as may be necessary by public regulatory bodies. Among the railroads that have authorized the submission of the proposal in their behalf are the following: New York Cenral; Southern Pacific; Burlington; Santa Fe; Southern; Union Pacific; Northern Pacific; Milwaukee; Chicago & North Western; Pennsylvania; Illinois Central; Great Northern; Louisville & Nashville; Atlantic Coast Line; Baltimore & Ohio; Nashville, Chattanooga & St. Louis; Rock Island; Western Railway of Alabama; New Haven; and Sea-

In discussing their plan, the railroads said: "The public interest requires that the railroads either conduct their own sleeping car service, or that it be conducted by an agency chosen by them and not by one which imposes itself upon them by purchasing the only available sleeping cars. The public interest also requires that each railroad be free to decide for itself whether and to what extent it will own the sleeping cars operated on its lines.

"It is contrary to the public interest to permit the ownership or control of the sleeping car business of the country to come into the hands or the management of a purchaser which is not engaged in the business of transportation, or to permit any one railroad, or those in control of the affairs of any one railroad to acquire control of or manage the sleeping car business of the other railroads.

Railroad Contracts Necessary

"Pullman sleeping cars have no earning capacity except through their use in service conducted on the lines of railroads of petitioners and other railroad companies, and no prospective purchaser has a contract with any of petitioners, or so far as petitioners know, with any other railroad for such use. Substantially the whole of their value, except as scrap, to any purchaser other than the railroads depends upon the negotiation of profitable operating contracts with the railroads.

"If any such purchaser pays such excessive price, it will have no means to recover such excessive price or a return thereon except from the railroads."

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Asks Mr. Harrison Some Questions

—a Communication

Bluefield, W. Va.

TO THE EDITOR:

I have read with interest in Railway Age the reprints of the three articles by George M. Harrison, president, Brotherhood of Railway Clerks, wherein he gives his views on post-war prospects of the railway industry in relation to their employees. I am in that great group of people known as the "working class," and I would like to comment on Mr. Harrison's articles.

Mr. Harrison has a perfect right to state the case for labor, but while he lists what should be done by management for labor, he leaves out what labor should do as its part in the post-war period. We, as the laboring class, have an important part in the future welfare of our industry; however, I am not too certain that the unions are aware of the responsibility that rests upon their shoulders.

Why Management and Not Unions?

I cannot see why management should be expected to do this and that, while labor unions desire to do as they please. Labor has lost, and through its own machination, the personal contact between management and labor that is so conducive to good relationship. L.bor, through the unions, has brought about a condition of stagnation—both in the field of performing tasks and allowing men to work up through the ranks. Seniority is a good thing—but it can also be a deadly poison to the very life-blood of an industry.

As Mr. Harrison points out, the railroads in many respects, from a management point, are outmoded and behind the times. With this I agree, but what Mr. Harrison does not desire to bring out is that the unions are to a great extent responsible for this

We will all agree that the future of airplane transportation will grow and expand, taking in many of the fields now handled by railway transportation. We will have to expend all of our energies to keep the railroads in the forefront of transportation competition. It will take men with a keen nsight into the problems of transportation guide us through the coming timesmen with vision and ability. Are we continuing to get men of this type in the railway industry? Are we allowing younger men with vision and ability to work up and aid the men who form the policies of the various companies? The answer is NO! And why are we not doing this? Because the union does not allow the railroads to employ keen-minded young men-men who tould become valuable workers in the highly ompetitive days ahead. Today, in our great industry, we have highly capable employees who cannot work up to be of value to their ompany because the union says it is not ability but years of service that counts.

Mr. Harrison, of what value will all the improvements that you advocate mean to labor if we are left behind by more progressive competitors? None whatsoever! Yet

we are allowing the air transportation industry to garner the market of young men with vision while the railroad industry must sit idly by as this takes place.

Mr. Harrison, you speak of "modernizing the railway plant," wherein you advocate that management modernize its physical facilities—especially where employees are concerned. With this, I believe, we all agree; however, I notice that in your articles you did not mention one very important point—that unions should modernize their organization for the better interest of all concerned.

In my college days in the nation's capital, I had the good fortune to come in contact with many of the leaders of labor unions, and my interest in the welfare of labor has been of long duration. I think we will all agree that progress means change and improvement, but we cannot gain very much by continually criticizing railway management. There are "false prophets" in union management as in any other large-scale organization. What we need more than anything else is not "demanding leaders" in labor so much as apostles of vision-vision to see that in our type of system labor can gain only so much, and to go further will lead to a breakdown in our industrial organ-

I am not only concerned with what labor gains or loses but I am also interested in both labor and management working together for the common good of both groups. Some of our leaders of organized labor will have to be far-sighted enough to realize that we will go forward, in the railroad

industry, in proportion to the vision of the men on both sides of the fence, and as they are capable of working together for a common good—the continued competitive strength of the railroads.

Rather than criticize it would be well for labor, particularly its leaders, to bring to the fore a creed of cooperation and faith—cooperation among all groups for the best interests of all, and faith that we as one cohesive force—labor and management working together—will overcome our difficulties in the critical days ahead.

Asks Cooperation of Labor Leaders

The real purpose of a labor union is to work for the good of labor and, in so doing, for the good of industry that supplies the means for labor to produce and thrive. Therefore, it would be well for our leaders of labor to adopt a more cooperative attitude toward the forces that provide labor with its means of livelihood.

I am, as I pointed out earlier in this article, a member of the wage-earner class, but I have the vision to know that labor alone cannot live without the instrument of capital in the hands of management. In your hands, as in the hands of other labor leaders, lies a great responsibility, and I hope that you will help bring to all of the laboring group, more especially in the railway industry, a new faith—that we will cooperate for the good of all.

EMANUEL B. COHEN An Employee of the N. & W.



The 756th Completes Its Freight Car Orders

Caboose 900820, the last freight car constructed at Marseille, France, by the Pennsylvania-sponsored 756th Railway Shop Battalion as it is pulled away from the erection shed—During nearly two years of work, the 756th erected 28,801 of the 49,292 cars constructed in England and France by the M.R.S.—Commanding officer of this outfit is Lt. Col. Howard U. Bates, of Canton, Ohio

GENERAL NEWS

Army Railroaders Win French Award

Maj. Gen. Carl R. Gray, Jr., makes presentation before M. R. S. gathering

Two former Atlantic Coast Line rail-roaders and an employee of the Pennsylvania recently were presented with the French award, "La Medaille de la Reconnaissance Francaise," by Maj. Gen. Carl R. Gray, Jr., director general of the Military Railway Service, before a regimental review of a railway shop battalion and two railway operating battalions of the 706th Railway Grand Division, at Namur, Belgium.

The award, "for exceptional services rendered during the operations for the Liberation of France," went to Maj. Clem Patterson, of Nashville, Tenn., and Capt. James Plant, of Thomasville, Ga., both former employees of the Atlantic Coast Line, and to M/Sgt. Arthur L. Foster, of Chicago, formerly with the P. R. R.

At the Presentation Ceremony

Gen. Gray salutes Capt. Plant, to whom he has just presented the French award—Maj. Patterson is second from left and Sgt. Foster is at right—The formal dress parade of the railway units in honor of the occasion was the largest single assembly of M. R. S. units ever held in the European theatre.

New Deal Economic Dictum

Ever since World War I it has been a commonplace of both engineering and economics that the problem of production had been substantially solved and that distribution was the bottleneck.

-Stuart Chase in a Letter to the N. Y. Times

No Roads Now Bar Delivery of Cars to Water Carriers

There are no longer any restrictions on the part of any car owner affecting the delivery of freight cars to any steamship, ferry or barge line, Chairman Warren C. Kendall of the Car Service Division, Association of American Railroads, advised all railroads in a November 6 circular. Prior to the war such restrictions, under Car Service Rule 4, were established by some of the railroads to prevent delivery of their cars to Seatrain Lines, Inc.

Mr. Kendall noted that this rule, so far as it applied to any service operated by the War Shipping Administration, was suspended from May 22, 1943, to August 17, 1945, under the Interstate Commerce Commission's Service Order No. 75. "In the meantime," he added, "advices have been received by the Car Service Division from all railroads that heretofore have filed any form of restriction under this rule instructing that such restrictions be canceled."

Who Wants the St. Lawrence Seaway? Lackawanna president surveys the evidence and finds

During the past half-century many boards and commissions have studied the proposed St. Lawrence Seaway project, and only one of them has reported favorably on it. That was "the International Joint High Commission, appointed in 1909, which didn't make its report until 1921. It took that commission 12 years to make a favorable report, and then Congress turned it down."

few proponents

Such was the summary of the history of the St. Lawrence Seaway project presented by William White, president of the Lackawanna, at a meeting of the N. Y. State Conference in Opposition to the St. Lawrence Project on November 7. There is not likely to be anything new that can be said on this project, after 50 years of pro and con discussion, Mr. White asserted, adding that a review of the salient facts was, nevertheless, in order, since a vocal minority is again vigorously endeavoring, once more, to put this project over.

Some Business Favors It-Mr. White addressed himself primarily to the question: "Who wants it?" There are, he said, some "business interests in a few midwestern and northwestern states" who "have painted rosy pictures of the benefits to be derived by placing the Great Lakes ports within reach of the Atlantic Ocean, presumably with the idea of getting cheaper transportation costs. We have heard it advocated to make work. So far as the St. Lawrence river itself is concerned, about 95 per cent of it is in Canada, and under the proposed agreement with Canada, work in the Canadian section will be done by Canadians, so there won't be much work on the river itself that will be done by United States labor." Continuing, he said in part:

Defense and Power—"We have heard it advocated for the purposes of defense. We got along pretty well in this war without it. If we have another war, the atomic bomb and possibly other engines of destruction yet to be developed by science will undoubtedly affect the outcome, whether we have completed the St. Lawrence Project or not. We are asked to believe that if it had not been for T.V.A. and Bonneville Dam we would not have had sufficient power to produce the atomic bomb, but I hope there are not many people so naive as to believe that.

"I am not an authority on the power aspect of the project and I do not know whether power can be produced economically by hydroelectric plants along the St. Lawrence river. Generally the biggest fac-



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Railway Age-November 17, 1945

power that minimal "If if it men, econo power to power people people to the transfer of the tr

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tor in the cost of power is the cost of transmission, which rises as the distance over which the power is transported is increased. How far, therefore, can power be transported, without substantial government subsidy, from plants on the St. Lawrence river and still be cheaper for the consumer than power produced by steam plants so located that the cost of transmission is held to a minimum?

"If it isn't necessary to our defense, and if it won't make work for American workmen, then we must view it entirely from an economic viewpoint. With respect to the power aspect it remains to be proved that we can't get just as much and as cheap power, with more benefit to the American people, without it than with it.

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"Cheap" Transportation-"The project in so far as transportation is concerned is to create a channel, with a minimum depth of 27 feet, from the Atlantic Ocean to ports on the Great Lakes, including Chicago and Duluth. The present minimum depth is 14 feet. The St. Lawrence now is navigable up to Montreal, and from Montreal to Duluth the distance is a little over 1300 miles, much of which is difficult navigation. Duluth is 600 feet above sea level, and the project calls for 21 locks between Montreal and Duluth, which would constitute 21 physical barriers to navigation. Rarely mentioned by proponents is the fact that there is not a harbor on the Great Lakes whose channel and pier facilities are adequate to accommodate ocean-going vessels suitable for high-seas navigation.

"No adequate information is available as to what the actual cost of the project will be. There have been estimates that vary from \$543 million to \$1 billion 350 million, and the average of all the estimates is about \$900 million. Well, the Bonneville Dam was estimated to cost \$42 million and actually cost \$80 million. The Welland Canal was estimated to cost \$40 million and actually cost \$120 million. The Panama Canal was estimated to cost \$150 million and actually cost \$375 million, and that luxurious dud of the State of New York known as the New York State Barge Canal was estimated to cost \$62 million and actually cost \$176 million. If experience means anything, we can expect then that the St. Lawrence Project, the pre-war estimates of which average \$900 million, will cost no less than \$2 billion.

S. S. Operators Apathetic—"The argument that the West needs the St. Lawrence Seaway as an outlet for its exports would be more convincing if some practical operating American steamship company would make its voice heard in support of the project, but the cold fact is that these steamship companies have either maintained silence or actively opposed it. It can't be said that the lack of the St. Lawrence Seaway for the 50 years that it has been advocated has retarded development of the West.

"There has been no convincing showing that transportation costs will be materially reduced were the channel of the St. Lawrence Seaway deepened to 27 feet. It has been the custom to assume that three miles of ocean transportation is the equivalent of one mile by rail, but that ratio applies only when vessels are operated in unrestricted waters.

"If we may assume that a great volume of tonnage would be moved on the St. Lawrence Seaway, which could be used no more than seven months out of a year, must we also assume that the railroads will continue to maintain services and facilities geared to handle the business during the other five months? Proponents ignore the question of the ability of the railroads and the various transshipping points to take the added load during the season of closed navigation. To maintain adequate facilities for doing that, while normal export and import business moves on the St. Lawrence waterway during the open season of navigation, would be highly uneconomical and, I think, impossible. If a large volume of tonnage will not move on the St. Lawrence Seaway, then why build it? And if a large tonnage should move on the St. Lawrence Seaway, a lot of shippers are going to have to expect deteriorated railroad service, and we will probably have some more bankrupt railroads.

More Than Merely Wasteful-"All that the St. Lawrence Seaway would do would be to hurt America. American business and American labor, and to bring about this hurt, we are asked to believe that it is economically beneficial for our country to pay its share of over a billion dollars for the project. With the national deft now about \$260 billion, and likely to go to \$300 billion before the budget is balanced, I don't suppose another billion added to it means much; but when that other billion means fewer jobs for American railroad men and coal miners, bankrupt railroads, and loss to bondholders and stockholders of those railroads, less business for the railroad suppliers, and a deteriorated railroad service that would necessarily follow the diversion of a large volume of tonnage during seven months out of twelve, then the spending of the billion becomes a serious matter indeed."

Airlines to Seek "Grass Roots" Support

Formation of a nationwide organization of commercial airline representatives "to carry on educational activities in 'grass roots' sections of the United States" was announced this week by Air Transport Association of America.

Dividing the United States into six divisions—each of which is under the direction of an airline executive—chairmen and vice-chairmen have been appointed in each state to supervise the "educational work." Several hundred airline representatives have been selected to carry on the activities involved in any "educational program," A. T. A. said.

The new organization was set up by a Special Committee on Governmental Regulation of which O. M. Mosier, vice-president of American Airlines, Inc., is chairman. This special committee is a subcommittee of A. T. A.'s State Relations Department.

Mr. Mosier is also a division chairman of the new "grass roots" set-up. Other division chairmen are: E. Smythe Gambrell, general counsel, Eastern Air Lines, Inc.; Russell Cantwell. executive assistant, Transcontinental & Western Air, Inc.; Robert M. Averill, assistant to the president, Pennsylvania-Central Airlines; A. E.

Floan, secretary, Northwest Airlines, Inc.; and Hainer Hinshaw, assistant to the president, United Air Lines, Inc.

Freight Car Loading

Loadings of revenue freight for the week ended November 10 were not available for publication at the time this issue went to press.

Loading of revenue freight for the week ended November 3 totaled 851,962 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week	Ended Sa	turday, Nov	ember 3
District	1945		1943
Eastern Allegheny Pocahontas Southern Northwestern Central Western Southwestern	157,396 174,873 59,426 130,123 124,945 139,217 65,982	189,295 55,425 128,516 131,486 145,061	143,543 150,737 18,773 103,740 134,357 129,975 73,614
Total Western Districts	330,144	355,417	337,946
Total All Roads	851,962	893,069	754,739
Commodities Grain and grain products Live stock Coal Coke Forest products Ore Merchandise I.c.I. Miscellaneous	59,070 27,830 180,684 11,690 36,008 51,599 116,229 368,852	25,287 170,625 14,337 43,952 63,249 109,042	56,428 26,333 42,803 11,820 43,772 72,653 104,621 396,309
November 3 October 27 October 20 October 13 October 6	851,962 854,779 773,427 754,521 767,985	893,069 916,485 906,005 898,720 877,035	754,739 883,727 905,419 912,348 906,357
Cumulative Total,			

44 Weeks ... 35,999,788 37,237,379 36,160,455

In Canada.—Carloadings for the week ended November 3 totaled 76,975 as com-

ended November 3 totaled 76,975 as compared with 78,755 for the previous week and 73,461 cars for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

Totals for Canada:	Cars	Rec'd from Connections
November 3, 1945 November 4, 1944	76,975 73,46	
Cumulative Totals in Cana	ida:	
November 3, 1945		

Former M. R. S. Railroader to Aid Chinese Transport

Lt. Col. Howard G. Hill, who once was a railway mechanical engineer with the Southern Pacific, who in 1943 was general manager of the U.S. Military Railway in Southern Sicily, and who recently was awarded the Legion of Merit upon completion of a tour of active duty with the Corps of Engineers, U. S. Army, has been appointed chief of transportation for the U. N. R. A. A. China Relief Mission. He will be in charge of a staff of transportation and communication specialists soon to leave for Shanghai to aid the Chinese in rehabilitation and operation of railways, motor transport, inland and coastal waterways, tele-communications and postal service. Colonel Hill at present is organizing his staff at the Washington headquarters of U. N. R. A. A.

Prior to accepting his new assignment, and since his return from overseas, Colonel Hill has been employed in the Diesel locomotive division of Fairbanks, Morse & Co., Chicago. He resigned this position October 15.

' (For a detailed account of the colonel's activities in the service, see *Railway Age*, January 27, 1945, page 243.)

Great Northern Strike Averted

A strike of enginemen, which has threatened for several weeks to tie up operation of the Great Northern, has been averted, according to a statement issued by Charles W. Moore, executive assistant. While declaring that so far no settlement between the railroad and the union had been completed, the statement gave no further details.

C. P. R. Reopening for the Tourist Trade

With the return movement of Canadian troops from abroad now past its peak, and because of the "extraordinary rate" of peacetime reconversion throughout the system, W. M. Neal, vice-president, Canadian Pacific, looks for an early return to "normal traffic."

Following a month's inspection trip of western Canada, Mr. Neal expressed his conviction that in 1946 the Canadian railways "will be called upon to carry the greatest amount of tourist business of all time." That every arrangement is being made in anticipation of this movement is evident in the preparation of resort hotels and lodges, the vice-president stated.

While the C. P. R. had ended the war period with all facilities at a high peak of efficiency, replacements are needed in passenger equipment, Mr. Neal said. This he looks upon as "a blessing in disguise," offering the railroad opportunity to incorporate changing trends into new and reequipped passenger car designs. Already the P. R. has modernized its compartment and bedroom cars, he noted, built new parlor cars and cafe services on secondary lines and has made other improvements. Many suggestions from women as to what they would like in post-war travel have been received and, he added, are being incorporated in the new equipment.

A. A. R. Demands Return to Home Lines of Auto Cars

Even though the resumption of production by automobile manufacturers has been delayed by labor troubles and other reconversion problems, the railroads already are experiencing difficulty in meeting all orders for cars equipped with auto loading devices or equipment for handling parts, according to the Car Service Division of the Association of American Railroads, and W. C. Kendall, chairman of the division, has called upon all railroads to return promptly to the home roads all cars which have been scheduled for reconditioning for this service.

The number of such cars received by home roads in October under C.S.D. instructions, it was indicated, was "exceedingly disappointing," and special directions have been issued to obtain more careful attention to this situation. Where box cars of specified ownership and number have not yet been re-equipped with special devices, the following instructions have been sent out: Empty cars on a connection of

the home road are to be delivered empty to that road at the nearest junction point; such cars on roads not direct connections are to be expedited empty to the owning road by the most direct practicable route; non-revenue waybills carrying appropriate notations to guard against loading are to accompany these cars.

Box cars and open tops which have been equipped or re-equipped with auto loading devices or equipment for handling parts are subject to special C.S.D. instructions also. When such cars are released from load of vehicles or parts, they are required to be returned sealed, on non-revenue waybills, via service route, to the loading road. When released from load of a commodity other than automobiles or parts, they are required to be returned to owning road by service route or short route. Empty cars of this category moving under these instructions are not to be used for any loading not requiring the special equipment installed in them.

While the necessity of checking individual numbers of foreign cars on line in compliance with these instructions is acknowledged to be a serious difficulty, Mr. Kendall pointed out that "it is of the utmost importance to the railroad industry that these cars be re-equipped as rapidly as possible." It is not considered practicable at this time to require the return of all cars in the affected series, as this would reduce the already short supply of cars available for miscellaneous loading.

Club Meetings

The annual "Honor Night" meeting of the Car Department Association of St. Louis, Mo., will be held at the Hotel De-Soto, in that city, at 8 p. m., November 20. Tom M. Hayes, passenger traffic manager of the Wabash, has been announced as guest speaker, who will pay tribute to old-timers in the car department. Special invited guests, all former honor speakers, include: K. F. Nystrom, mechanical assistant to chief operating officer, Chicago, Milwaukee, St. Paul & Pacific; S. O. Taylor, former master car builder, Missouri Pacific; V. R. Hawthorne, director, Mechanical division, Association of American Railroads; C. J. Nelson, superintendent of interchange, Chicago; M. E. Fitzgerald, master car builder. Chicago & Eastern Illinois; C. M. House, superintendent, motive power and equipment, Alton; and LeRoy Kramer, first vicepresident, General American Transportation Corporation.

Special after-dinner speaker, following the 6:30 dinner, will be Col. Aubrey M. Bruce, superintendent motive power and equipment, steam lines, Illinois Terminal Railroad, who recently returned from overseas duties as superintendent of equipment for the Third Military Railway Service, Persian Gulf Command.

D. R. George, of the Long Island public relations department, will address the 7:45 p.m., November 21 meeting of the New York City division of Railroad Enthusiasts, Inc., when that group holds its "Long Island Railroad Nite." L. R. Stewart, road foreman of engines, will speak on motive power. The meeting will be held in Room 5928, Grand Central terminal.

T. D. Slattery, traffic manager, British & Irish Railways in New York, will address

the Western Railway Club at its November 19 session, in the Grand Ballroom, Hotel Sherman, Chicago. Prior to the 8 p. m. meeting, there will be a reception at 6 p. m. and a dinner at 7 p. m.

Houston Embargo Lifted

The general embargo of export, coast-wise and intercoastal traffic for movement via the port of Houston, Tex., was cancelled, effective November 7, except on carbon black for export. The embargo, which was placed on October 22, was caused by a strike of warehousemen and checkers' locals of the International Longshoremen's Association.

New Haven Booklet Publicizes Industrial New England

Continuing its campaign for encouraging New England industrial expansion, the New York, New Haven & Hartford is distributing through its newly-organized department of industrial development an attractive four-color booklet, entitled "Southern New England for Tomorrow's Industry." The message is being offered to industrial executives throughout the country by field representatives of the railroad, in addition to newspaper and periodical advertising.

The 7,000,000 inhabitants of the region "paced by stimulating leadership . . . have developed a contagious spirit of ingenuity and industrious activity which makes for good business and better living," the booklet declares, pointing to the fact that government, education, transportation and industry all had their beginnings in southern New England.

A section of the booklet is devoted to markets, and it is observed that southern New England is the richest consumer goods market per square mile of population in the nation. It is stated elsewhere that 10.1 per cent of America's industrial workers live in this section, and that "the skill and adaptability of its craftsmen, their traditional pride in workmanship, and their record of avoiding disputes and preventing strikes strengthen the possibility of a lower

unit production."

A chapter on transportation includes a colored map of New Haven lines, showing those devoted to both freight and passenger service, as well as those handling freight only or passenger service only.

A. A. R. Mechanical Division Letter Ballot Results

As authorized by the General Committee of the A. A. R., Mechanical Division, the recommendations of various committees for changes in the standard and recommended practice of the division were submitted to letter ballot in the form of 25 separate propositions, in Circular D.V.-1090, dated August 24, 1945.

On the basis of letter ballot returns, it has been announced that Propositions 1, 3 and 4 are being held in abeyance pending further consideration by the General Committee, because of the substantial negative vote and the reasons advanced therefor. Propositions 2 and 5 to 25, inclusive, have been approved by the A. A. R. and are effective January 1, 1946.

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With the Government Agencies

I.C.C. Issues Orders for Loading Speed-up

Service Orders No. 369 and 368 are designed to relieve box car shortage in West

Taking steps which it considered necessary in view of a reported current shortage in the supply of box cars, particularly in the western grain states, the Interstate Commerce Commission has issued two service orders which are intended to speed up the loading and unloading of this type of equipment. One order, No. 369, effective November 15 to December 15, amounts to a reinstatement of the sliding scale of demurrage charges formerly prescribed under Service Order No. 242-B.

Under the new order, which is applicable to both intrastate and interstate traffic, the demurrage charge on box cars held for loading or unloading beyond tariff free time are established on the following scale: For the first two days, \$2.20 per day; for the third day, \$5.50; for the fourth day, \$11.00; and for each day thereafter, \$16.50. Where cars subject to demurrage charges are subject to an average agreement, the \$2.20 per day charges may be offset or reduced by credits under the agreement, but the charges at higher rates may not be. The order applies to cars of the X or V type, and also to type BX when used in freight service, but it does not apply where cars are used in import, export, coastwise or intercoastal traffic.

Another order intended to speed up the release of box cars is No. 368 (corrected), effective November 15 through December 15. Subject to Bureau of Service permit, railroads that have the "duty, responsibility, or obligation to unload freight" at any point, "including ports," are required by this order to unload "forthwith" all freight in their possession held in box cars ten days from date of arrival. Where cars have been on hand more than five days on November 15, unloading may be deferred to November 20. The order applies to intrastate, interstate and foreign commerce. While it is understood that the main purpose of the order is to reduce detention of cars at ports, it also covers those freight houses or other points where it is the carrier's responsibility to unload cars, and applies to cars containing freight held short of points where railroad unloading is pro-

The commission has modified the provisions of Service Order No. 340 by issuing a revised version of that order, effective November 8 through January 10, 1946. The original order established minimum weights on westbound carload freight transferred at transfer points west of the Mississippi river, and the effect of the revision is to give railroads affected the option of

Carl Gray Back in U.S.

Major General Carl R. Gray, Jr., director general of the Military Railway Service in Europe, closed his headquarters in Paris on October 24 and sailed with his headquarters staff from Le Havre, arriving in New York on November 9. He and his staff left New York the same evening in special Pullmans on the Pennsylvania's "Golden Arrow" for St. Paul, where the M. R. S. headquarters group will be mustered out of active service.

Brigadier General John A. Appleton—until recently director of railway branch of the transport division of the U. S. group control council in Germany and, before that, advisor on railroad operations on the staff of General Eisenhower—has also recently returned to the United States.

calculating the minimum per car on outbound transfer freight on an average basis (12,500 lb. minimum average for refrigerator cars or 27,500 lb. for box cars) for 30-day periods, the date beginning such period to be selected by the carrier and reported to the commission's Bureau of Service

The commission also has issued Service Order No. 371, effective November 12, and supplanted by Revised No. 371, effective November 16 through December 20, under which railroads are prohibited from furnishing box cars, suitable for loading with flour or sugar, for the purpose of loading ammunition for the Army or Navy at or from Pacific or Atlantic coast ports or terminais. The order further prohibits the moving in interstate or intrastate commerce of cars so loaded. Its purpose, it was indicated, was to prevent the unnecessary use for this purpose of high class box cars which are now in short supply.

G. N. Agrees to Signal Fargo Junction-Surrey Line

Following through from the Great Northern's recent return to a show-cause order wherein the road agreed to install an automatic block signal system on its 275-mile line from Fargo Junction, N. D., through Grand Forks to Surrey, the Interstate Commerce Commission has issued an order requiring the installation to be completed before January 1, 1947. The proceeding is Docket No. 28750 Sub. No. 19, and the order by Commissioner Patterson is dated November 9.

As noted in the Railway Age of September 29, page 532, the show-cause order was issued by the commission when it made public its report on the August 9 accident at Michigan, N. D., which involved two sections of the G. N.'s westbound "Empire Builder" and resulted in the death of 33 passengers and one employee.

Amortization Speed Distorts Earnings

Write-off for September was \$101,661,375 in excess of "normal" accruals

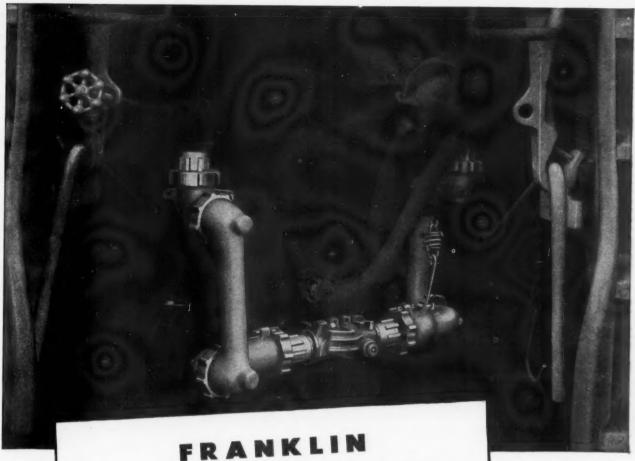
Railroad operating results for September and subsequent months of this year are not directly comparable with those of corresponding periods in prior years, because of the higher charges resulting from the shortened period of amortization for emergency facilities certified under section 124 of the Internal Revenue Code. This is emphasized by the Interstate Commerce Commission's Bureau of Transport Economics and Statistics in the latest issue of its "Monthly Comment on Transportation Statistics," which cites indications that the "great majority" of the Class I roads will take advantage of the authority to expedite amortization.

Authorized by Truman-The authority came in President Truman's September 29 proclamation officially ending the emergency period with respect to the certified facilities. As noted in the Railway Age of October 13, page 620, Section 124 of the Internal Revenue Code is that section which provided that facilities certified as necessary for the national defense could be amortized over a period of 60 months. The President's proclamation had the effect of issuing a blanket certificate of non-necessity. Thus companies with certified facilities not fully amortized were left with various options, including one which permitted termination of the amortization and recomputation of it on the basis of the shorter term.

For accounting purposes those carriers electing to use the shortened period of amortization are permitted by the I. C. C. to charge operating expenses during the remaining months of 1945 with the entire amount of the unamortized balances with resulting credits to railway tax accruals. For September, the "comment" notes, 16 Class I roads reported that they had made use of this method.

September earnings as reported by the Association of American Railroads, were noted in the Railway Age of November 10, page 757. They showed an estimated net income of \$10,200,000 compared with \$55,544,824 in September, 1944; and a net railway operating income of \$43,976,188 compared with \$90,128,547. The I. C. C. bureau's analysis reveals that the reported September operating expenses included charges for amortization of defense projects of \$101,661,375 in excess of the normal accruals of \$21,530,709. Reported concurrent credits to railway tax accruals because of these "abnormal" charges, the "comment" went on, amounted to \$77,560,128, "resulting in a net reduction in net operating income





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and in net income of \$24,101,247." This net reduction, it is pointed out, amounts to 35.4 per cent of the September net railway operating income which would otherwise have been recorded. Likewise was the operating ratio for September "sharply inflated," being 91.5 per cent as compared with September, 1944's 65.2 per cent.

Half Billion to Charge Off—The bureau estimated that the unamortized balance for amortization of defense projects, as of October 1, amounted to approximately \$485 million, of which \$438 million is for equipment and \$47 million for roadway property. "Should all the carriers elect to use the shortened period for amortization," it said, "this amount will be charged off during the remainder of the year and as a consequence railway tax accruals will be concurrently reduced. As indicated by the figures for September, however, the resulting tax credit will be less than the estimated \$485 million unamortized balance as of October 1."

Meanwhile, the bureau's regular monthly review of revenues showed that the freight revenue of the Class I roads in September, on a daily basis, was 4.7 per cent lower than for August and 17.3 per cent under September, 1944. The freight revenue index (based on the 1935-1939 monthly average as 100) was 194.3, the lowest since January, 1943's 197.9. For August the figure was 204, while July's was 226.9.

September passenger revenue, on a daily basis, was 5.5 per cent less than for August and 8.4 per cent under September, 1944. The passenger revenue index was 413.5, compared with August's 437.6, and September, 1944's 451.3.

Loadings Estimates Cease-The discussion of freight traffic reveals that the bureau has discontinued its forecasts of car loadings "because of budget limitations." An analysis of railway tax accruals shows that the total for Class I line-haul roads declined 11.3 per cent in the first eight months of 1945 as compared with last year. Federal income taxes, including excess profits taxes, declined 16.9 per cent while payroll and all other taxes were up 1.1 and 3.9 per cent, respectively. The federal income tax decreases by territories varied markedly, the range being from the drop of 45.6 per cent in the Eastern district to the decline of only 0.5 per cent in the Western district. For all taxes the territorial variation was from the 25.1 per cent decline in the Eastern district to the 0.2 per cent increase in the Western district.

The bureau's analysis of maintenance ratios shows that total man-hours of maintenance paid for rose 59.5 per cent (from 1,176 million to 1,876 million) between 1940 and 1944. In terms of car-miles (man-hours per 100 car miles) the maintenance of way and structures ratio rose from 1.8 in 1940 to 1.89 in 1944, having meanwhile declined to 1.73 in 1942. The maintenance of equipment ratio on the same basis rose from 1940's 2.51 to 1944's 2.58, but was down to 2.38 in 1942. For the first seven months of this year the maintenance of way ratio was 1.97 while the maintenance of equipment figure was 2.65.

Maintenance Up—"The increase in the maintenance ratio since 1942," the bureau suggests, "may be plausibly attributed to a variety of factors including the substitution

of relatively inexperienced maintenance personnel for those entering the armed forces, the relative shortage of new equipment and materials, the cumulative wear and tear arising from increased intensity of utilization, and perhaps in part to attempts to offset deferred maintenance."

The total service hours and total compensation of train and engine service employees of Class I line-haul roads are found to have increased 60.1 per cent and 97.7 per cent, respectively, in the first seven months of this year over the same period in the pre-war year 1940. The average compensation per hour was 23.5 per cent higher this year than in 1940. Traffic handled by these employees as measured in car-miles and in traffic units (revenue ton-miles plus twice the passenger-miles) increased 57.2 and 129.5 per cent, respectively. The larger increase on the traffic-units basis is attributed to the heavier wartime loading of both freight and passenger cars.

Output per Wage Dollar—A tabulation in the statement shows that the average number of traffic units per hour of service of train and engine service employees increased 43.2 per cent during the first seven months of this year as compared with 1940; while traffic units per dollar of train and engine service wages were rising 16.1 per cent. The table also shows, however, that the production of car-miles per hour paid for in train and engine service decreased from 44.1 in the 1940 period to 43.2 in 1945, or two per cent, while the car-miles per dollar of compensation dropped 20.6 per cent—from 47.7 to 37.9.

Latest data on freight service performed by various types of motive power show that Diesel-electrics handled 6.3 per cent of the total ton-miles of cars and contents during the first eight months of this year as compared with three per cent in the same 1944 period. Meanwhile, the proportion handled by coal-burning steam locomotives dropped from 75.6 per cent to 71.1 per cent, and the proportion handled by oil-burning steam locomotives increased from 19.5 to 20.8 per cent. The proportion handled by electrics fell off fractionally, from 1.9 per cent to 1.8 per cent.

A tabulation of data showing by types of locomotives the number of gross ton-miles per dollar of fuel expense indicates that a dollar spent for Diesel fuel during the first eight months of this year produced 10,483 gross ton-miles (including locomotives and tenders) as compared with 4,838 ton-miles per dollar spent for coal, 4,687 ton-miles per dollar spent for fuel oil for oil-burning steam locomotives, and 4,171 ton-miles per dollar spent for electric current for electric locomotives. The bureau's comment on these averages includes the following:

"While the above figures indicate that per dollar of expense Diesel fuel is decidedly more economical than other kinds of fuel in producing gross ton-miles, it should be borne in mind that these are overall averages. Many Class I roads operate no Diesels in freight service. Of the 22,297 locomotives assigned to road freight service on August 31, 1945, only 477 were Diesel-electrics. Information as to the extent to which similar averages for the various kinds of fuel would vary under like operating conditions is not available in our records."

Heavier Rail—Another tabulation in the "comment" shows for Class I line-haul roads, the miles of all main track by weight of rail—December 31, 1944, compared with December 31, 1935. During that 10-year period, the bureau notes, that the railroads, "despite the depression and the war," have made "considerable progress" in replacing lighter rails with those of a heavier type. On December 31, 1935, 35.61 per cent of the main-track mileage had rail weighing 100 lb. or more per yard, while at the close of 1944 the corresponding percentage was 47.77. The average weight of rail per yard increased from 92.72 lb. in 1935 to 98.09 in 1944.

Data on rail laid in replacement show that in 1944 the tonnage installed reached the highest point since 1929. Last year's totals were 1,561,638 long tons of new rail and 1,316,430 tons of second-hand rail. These compare, respectively, with 1929 figures of 1,958,489 tons and 1,651,966 tons.

Tax Relief Law

Railroads along with other industries will receive tax reductions under the provisions of the recently-enacted interim tax bill, H. R. 4309, which was signed by President Truman last week. The act repeals the excess profits tax as of January 1, 1946, decreases corporation surtax rates, retains through 1946 the carry-back provisions with respect to unused excess profits credits, and freezes social security payments at one per cent through next year.

Another provision extends for one year from December 31 the provisions of Internal Revenue Code sections 22(b) (9) and (10) which exclude from gross income the income attributable to discharge of indebtedness through the acquisition by a corporation of its own securities at less than par. Also, the capital stock tax is repealed.

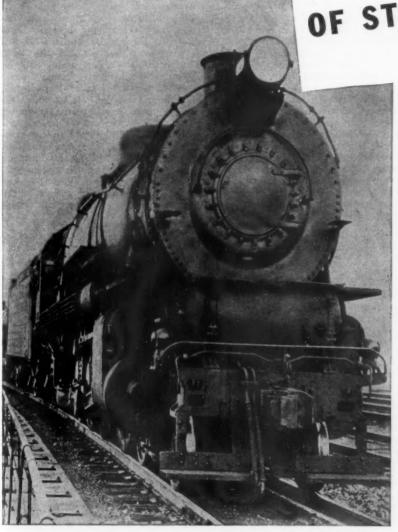
The reduction in corporate surtaxes leaves those taxes six per cent on surtax net income not over \$25,000; \$1,500 plus 22 per cent on surtax net income over \$25,000 but not over \$50,000; and 14 per cent on surtax net income over \$50,000.

October Employment Down

Railroad employment declined 1.19 per cent—from 1,413,504 to 1,396,637—during the one-month period from mid-September to mid-October, and the October total was 0.97 per cent below that of October, 1944, according to the preliminary summary based on reports from Class I line-haul roads and prepared by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. The index number, based on the 1935-1939 average as 100, was 132.4, as compared with September's 135.2 and October, 1944's 133.7.

October employment was below that of the previous month in all groups except one, transportation other than train, engine and yard, where the increase was 0.19 per cent. The decrease in other groups ranged from 0.50 per cent in executives, officials and staff assistants to 2.38 per cent in the maintenance of way and structures group. Four groups were below the October, 1944, figures, and three were above, the range of decreases being from 3.94 per cent for the train and engine service category to 0.74 per cent for the professional, clerical and general class. The range of increases above

EVERY POUND of STEAM COUNTS



• When you are making every effort to secure maximum efficiency from your steam locomotives, remember the importance of maintaining a *complete* brick arch in the firebox.

For 36 years Security Sectional Arches have been saving fuel on all types of locomotives, and the harder a locomotive is worked the greater the proportionate fuel saving.

The cost of maintaining a complete arch is but a fraction of that of the coal conserved.

HARBISON-WALKER REFRACTORIES CO. Refractories Specialists



AMERICAN ARCH CO. INC. 60 East 42nd Street, New York 17, N. Y. Locomotive Combustion Specialists

October, 1944, was from 0.79 per cent for transportation, other than train, engine and yard, up to 2.06 per cent for executives, officials and staff assistants.

September Accident Statistics

The Interstate Commerce Commission on November 9 made public its Bureau of Transport Economics and Statistics' preliminary summary of steam railway accidents for September and this year's first nine months. The compilation, which is subject to revision, follows:

	Mor Septe		9 months ended with September			
Item	1945	1944	1945	1944		
Number of train ac- cidents* Number of casualties in train, train-serv- ice and nontrain	1,282	1,279	12,830	12,136		
accidents: Trespassers: Killed Injured Passengers on trains:	154 104			1,159 887		
(a) In train acdents* Killed Injured (b) In train-service accidents	4 153	35 241				
ice accidents Killed Injured Travelers not on	219		50 2,036			
trains: Killed Injured	4 85	91	10 819			
Employee on duty: Killed	72 3,839	68 3,930	651 35,447	729 35,039		
passers:** Killed Injured Total—All classes	147 522	158 481	1,426 4,985	1,387 4,794		
of persons: Killed Injured	384 4,922	397 5,101	3,464 45,621	3,454 44,941		

*Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former cause damage of more than \$150 to railway property.

**Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties for all classes of persons, including both trespassers and nontrespassers, were as follows:

Persons:								
Killed					139	133		
Injured					340	252	2,859	2,743

Receiverships and Trusteeships as of June 30

Seventy-six railroads, including 25 Class I roads and 51 others, were in receivership or trusteeship as of June 30, 1945, according to a recent compilation of the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. The total operated mileage involved was 50,581.

As of December 31, 1944, there were the same number of railway companies, and the same number of Class I and other roads, in receivership or trusteeship, their total operated mileage at that time being 50,497. This was 21.02 per cent of all operated steam railroad mileage, as compared to 26.90 per cent on December 31, 1943, and 27.68 per cent at the end of 1942.

The road which has been in reorganization proceedings for the longest period continues to be the Pittsburg, Shawmut & Northern, which has been operated by a receiver since 1905. The decrease since December 31, 1943, in mileage operated by lines undergoing reorganization is accounted for largely by the consummation of the reorganization of three large roads, the Western Pacific, the Minneapolis, St. Paul & Sault Ste. Marie, and the Chicago &

North Western. The principal companies added to the group undergoing reorganization in the same period were the Louisiana & Missouri River, which owns 76 miles but is not an operating company, and the St. Johnsbury & Lake Champlain, which operates 96 miles.

I. C. C. Will Not Aid Employees Seeking Passes

Dismissing a complaint of the Dining Car Employees' Union, Local No. 351, against the Atchison, Topeka & Santa Fe, docketed as No. 29195, Division 2 of the Interstate Commerce Commission has held it is without jurisdiction to act on the subject at issue, that is, the alleged refusal of the railroad to issue free passes to members of that union in the employ of Fred Harvey to the same extent as such passes are issued to its "other employees.

The employees concerned have been found by the commission to come within the definition of railroad employees for the purposes of the Railway Labor Act, in view of the road's contract with Harvey. The law, however, lays no duty on a railroad, "either expressly or by necessary implication," said the division, to grant free transportation to employees, but merely provides that it may legally do so without transgressing the statutory requirement of equality of treatment of passengers. No power rests in the commission, directly or indirectly, it held, to apply the undue preference provisions of the Interstate Commerce Act to the carrier's exercise of that

O.K.'s Train Communications; Show-Cause Order on Signals

While approving a Missouri Pacific application for authority to install a train communication system on its 193-mile line between McGehee, Ark., and Alexandria, La., the Interstate Commerce Commission has at the same time issued an order requiring the road to show cause why it should not be required to install an "adequate block signal system" on the 73-mile section of the line between McGehee and Colliston, La. The 120-mile section between Colliston and Alexandria is already equipped with automatic block signals.

Both orders were by Commissioner Patterson, the one approving the communication system being in BS-Ap-No. 7797, and the show-cause order Docket No. 28750 Sub. No. 20. Both were made public on November 13, although the former is dated November 6 and the latter November 9.

December 15 is the date by which the formal return to the show-cause order must be filed with the commission. The order approving installation of the train-communication system is subject to the usual conditions imposed in such cases, including stipulations to the effect that system shall not supplant any existing signaling devices nor involve any material change in the present methods of operating trains or signaling facilities.

Supply Trade

J. J. Smith has been appointed manager of the Schenectady, N. Y., plant of the American Locomotive Company.

Harold W. Dodge has been appointed assistant manager-parts sales for the ACF-Brill Motors Company, covering all states west of the Ohio and Mississippi rivers, with headquarters in Chicago.

Isador Glueck, general manager of the eastern division of the Federated Metals division, American Smelting & Refining Co., has retired after 31 years of service with Federated and its predecessor com-

Robert M. Hatfield has resigned as deputy vice-chairman of the War Production Board and has been appointed assistant general sales manager of the Combustion Engineering Company. Mr. Hatfield was employed with the Combustion Engineering Company from 1934 to 1942, when he entered government service.

Harry W. Frier, who resigned as director of advertising and public relations for the Chicago & North Western after five years at that post (as reported in the "Railway Officers" columns, Railway Age, November 3, page 737), has joined the firm of Foote, Cone & Belding as account executive in charge of the New York Central account

Emanuel Woodings, president of the Woodings Forge & Tool Co., and of the Woodings-Verona Tool Works, with headquarters at Verona, Pa., has been elected executive chairman of the board of directors of both companies. Wilbert H. Woodings, vice-president of both organizations, has been elected president, with headquarters as before at Verona, succeeding Mr. Woodings.

The Westinghouse Electric Corporation has announced plans to acquire 26 acres of land in Hillside, N. J., on which it will construct a brick and steel one-story building with about five acres of floor space, to allow for expansion of warehouse, service and manufacturing facilities of its Newark, N. J., manufacturing and repair department. Cost of the new building will exceed \$1,000,000. Activities at the new plant will include manufacturing of switchboards, control, panel boards, and repairing of motors, transformers, generators and other electrical equipment for utilities, railroads and industrial corporations. Operations at the manufacturing and repair plant and the Westinghouse warehouse will be transferred to the new location when the building is ready.

Charles H. Morse, III, has been elected vice-president of Fairbanks, Morse & Co. Mr. Morse will be in charge of research patents, traffic, the company's western pump division, and the Inland Utilities Company, Fairbanks-Morse subsidiary. His headquarters will be in Chicago. Following two years of service in the first world war, Mr. Morse entered the company's Three Rivers, Mich., plant as a

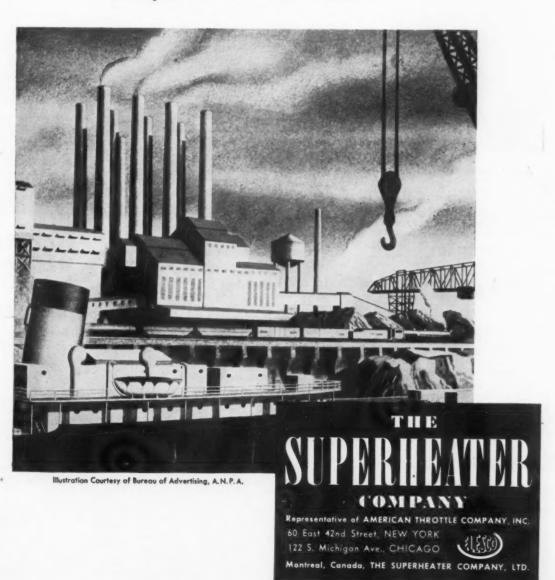
Low-Cost

TRANSPORTATION

One of the fundamentals of prosperity is low-cost transportation. This is possible with modern equipment.

The modern steam locomotive can be designed to provide for ample boiler capacity within weight and clearance limits. Major factors in this accomplishment are—superheaters designed to meet requirements... and the reclamation of exhaust steam through the medium of Elesco feedwater heaters.

Our engineers are available for consultation,



factory worker. He was employed there for seven years and subsequently in the company's electric motors plant, in the St. Paul, Minn., sales department, and in the scales factory in St. Johnsbury, Vt. He was promoted to manager of the Memphis, Tenn., sub-branch, and then transferred to the Diesel engine department in Kansas City, Mo. He was elected president of the Inland Utilities Company in 1935. Since then he also served for a brief period as assistant general manager of the company's Beloit. Wis., works.

Albert Nathaniel Williams, of New York, president of the Western Union Telegraph Company, has been elected vicechairman of the boards of directors of the Westinghouse Air Brake Company and the Union Switch & Signal Co. Mr.



Albert Nathaniel Williams

Williams, who has been a member of the boards of both companies since last February, will assume his new post as vicechairman effective January 1, 1946.

OBITUARY

Edward Goodman Sperry, vice-president and treasurer of Sperry Products, Inc., Hoboken, N. J., died November 6, He was 54 years of age.

Mortimer R. Kempton, engineer of freight cars of the Pullman-Standard Car Manufacturing Company, died on November 8 while on a vacation at Martinsville. Ind. Mr. Kempton was born in 1887 and in 1910 he went with the car building firm of Haskell & Barker, Michigan City, Ind. In 1922 when that company was merged with Pullman-Standard, he joined the latter organization.

Equipment and Supplies

LOCOMOTIVES

Virginian Buys Four M. G. Electric Locomotives

Four 500-ton, motor-generator type electric locomotives will be built by the General Electric Company for delivery to the Virginian in 1946. They will be used mainly for heavy coal-haulage operations over the Allegheny mountains on the Virginian's electrified territory between Roanoke, Va., and Mullens, W. Va.

The locomotives will have a short time rating of 8,000 hp. and a continuous rating of 6,800 hp. The weight on drivers will be 500 tons and the starting tractive force 260,000 lb. based on 26 per cent adhesion. Continuous tractive force at 15.75 m.p.h. will be 162,000 lb.

Two 4,000 horsepower motor generator sets, mounted within the cab structure, will supply energy to d.c. traction motors geared to the 16 driving axles under the two-cab unit. The motor generator sets will work on the 11,000-volt, 25-cycle overhead contact system, with which the Virginian line is equipped. Power is supplied by coal-burning power plants. The locomotives will be used to haul 10,000-ton trains on heavy grades. They are geared for a maximum speed of 50 m.p.h.

SIGNALING

The CLEVELAND, CINCINNATI, CHICAGO & St. Louis is arranging to install three Model-31 electro-pneumatic car retarders, totaling 2241/2 rail feet of retardation, in the westbound Sharonville classification yard, Cincinnati, Ohio, with these new retarders being furnished by the Union Switch & Signal Co.

Financial

BALTIMORE & OHIO.—Equipment Trust Certificates.-Division 4 of the Interstate Commerce Commission has authorized this company to assume liability for \$3,450,000 of series P equipment trust certificates, sold at 99.28 with a 2 per cent interest rate to Salomon Brothers & Hutzler and others. The equipment to be acquired includes 1,000 50-ton hopper cars at \$2,771 each and 350 70-ton covered hopper cars at \$4,407 each, the aggregate cost being \$4,313,996.

BALTIMORE & OHIO-NEW YORK CENTRAL. Toledo Terminal Development.—The Baltimore & Ohio and the New York Central have applied to the Interstate Commerce Commission for authority to proceed with the development of new facilities on Lake Erie, adjacent to Toledo, Ohio, for handling coal, iron ore and other bulk commodities in connection with lake vessel transportation. A newly organized company, the Lakefront Dock & Railroad Terminal, jointly controlled by the two carriers, is to construct and operate the facilities, which will include some 55 miles of yard and terminal trackage, and the parent companies will acquire trackage rights thereon. Expenditures by the new company for the construction of the terminal are expected to total about \$15,000,000, to be advanced in equal amounts by the parent companies, in return for which each is to receive stock and bonds of the new company in equal proportions, the issue of which remains subject to later approval by the commission. At the same time, the two carriers have asked for approval of modifications of agreements for operation under trackage rights on lines of the Toledo Terminal, in order to gain access to the new property.

MINNEAPOLIS & St. Louis.—Common Dividend.—The Minneapolis & St. Louis has declared a common stock dividend of \$1 per share payable December 15, 1945. This is the fourth \$1 dividend paid by the M. & St. L. this year and brings total payments for 1945 to \$4.

Southern.—Bond Offer.—The Southern proposes to purchase for retirement up to \$5,000,000, principal amount, of two series of its non-callable development and general mortgage bonds due 1956. Development and general mortgage 6 per cent bonds will be purchased at 118 and development and general mortgage 61/2 per cent bonds at 122, plus accrued interest to November 30, 1945, when the offer expires. Earnest E. Norris, president, announced that within the last month the Southern had acquired \$2,650,000, principal amount, of the two series at 118 for the 6s and 122 for the 61/2s

Average Prices Stocks and Bonds

Nov. 13 week Average price of 20 representative railway stocks. Average price of 20 representative railway bonds. 55.75 62.03 42.90 99.60 99.77 90.36

Dividends Declared

Albany & Vermont.—\$1.25, payable November 15 to holders of record November 1.

Boston & Albany.—\$2.25, payable December 31 to holders of record November 30.

Chestnut Hill.—Quarterly, 75¢, payable December 4 to holders of record November 20.

Delaware & Bound Brook.—Quarterly, 50¢, payable December 10 to holders of record December 3.

able December 10 to holders of record December 3.

Little Miami.—Original stock, \$1.10, payable December 10 to holders of record November 24.

Minnesota & St. Louis.—\$1.00, payable December 15 to holders of record December 1.

Montgomery & Erie.—Semi-annually, 17½¢, payable November 10 to holders of record October 31.

Pittsburgh, Bessemer & Lake Erie.—8% preferred, semi-annually, \$1.50, payable December 1 to holders of record November 15.

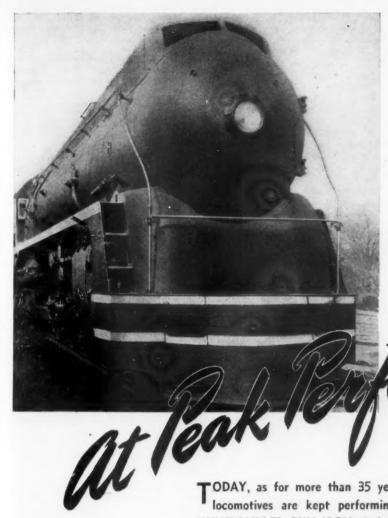
Pittsburgh, Youngstown & Ashtabula.—7% preferred, quarterly, \$1.75, payable December 1 to holders of record November 20.

Railway Officers

EXECUTIVE

A. G. Donovan, Jr., formerly general agent of the Texas & Pacific, at New York, who has been on leave of absence to serve with the armed forces since 1942, has returned to the T. & P., and has been promoted to assistant to the vice-president, with headquarters at Dallas, Tex.

John C. Emery, formerly a commander in the United States Naval Reserve, has returned to the Railway Express Agency, to assume the position of executive representative on the president's staff. Emery was born in 1902 in Kansas City, Mo., and attended the University of Wisconsin. He entered railroading with the Alton and later went with the Canadian Pacific, employed in their traffic and operating departments. He became associate editor on the staff of Railway Age in 1922, becoming motor transport editor in 1926. In 1935 Mr. Emery left the Railway Age to become co-director of passenger and merchandise service on the staff of the Federal Co-ordinator of Transportation at Washington, D. C. Mr. Emery became associated





LOCOMOTIVES OTHER

TODAY, as for more than 35 years, the I-5's and all other New Haven steam locomotives are kept performing efficiently and economically by the use of HUNT-SPILLER GUN IRON vital parts. Only because HSGI—a superior material to start with—has been constantly improved through the years; only because it

has met each new and intensified demand of increased locomotive speed and power, have the New Haven and 75 other Class I roads used it for a generation or more. Such a record assures full satisfaction with the use of any parts listed below.



When the New Haven first began using HSGI parts, No. 538 was representative of locomotives which pulled crack trains between Boston and New York.



HUNT-SPILLER MFG. CORPORATION

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Cylinder Bushings Cylinder Packing Rings Pistons or Piston Bull Rings Valve Bushings Valve Packing Pings

Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings
Light Weight Valves
Cylinder Liners and Piston

Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings, All Shapes

with Railway Express Agency in 1937 as special representative to the president at New York, and was appointed executive representative in May, 1941. In December, 1942, he left to accept a commission as lieutenant commander in the Naval Reserve,



John C. Emery

subsequently becoming executive officer, Transportation Division, Bureau of Supplies and Accounts, Navy Department at Washington, D. C. In January, 1945, he was transferred to the Western Sea Frontier at San Francisco, Cal., and was advanced to a full commander in July. He was released from active duty on November 6.

FINANCIAL, LEGAL AND ACCOUNTING

George T. McElroy, special assistant for the Boston & Maine, the Maine Central, and the Portland Terminal Company, has been named auditor disbursements, succeeding Arthur T. Mather, whose retirement after 45 years of service became effective October 31.

OPERATING

Leason L. Waters, whose promotion to superintendent of terminals of the Southern at Meridian, Miss., was reported in the



Leason L. Waters

Railway Age of October 6, was born at Emory Gap, Tenn., on October 2, 1903. He entered railway service as t freight clerk of

the Cincinnati, New Orleans & Texas Pacific (part of the Southern) in October, 1918, subsequently holding other minor positions, until February 1, 1936, when he was promoted to secretary to the general manager of the Southern at Cincinnati, Ohio. One year later Mr. Waters was appointed assistant trainmaster at Lexington, Ky., being promoted to trainmaster on February 1, 1938, with headquarters at Cincinnati. From October 15, 1938, to April 16, 1944, he served in the same capacity for both the Southern and the C. N. O. & T. P. at Oakdale; Strasburg, Va.; Columbia, S. C.; Greensboro, N. C.; and Charlottesville, Va., remaining in the latter location until his recent promotion.

G. R. Jones, superintendent of the Atlantic division of the Canadian Pacific Express Company at Montreal, Ont., has been appointed general superintendent of cartage with headquarters at Toronto, Ont. He is succeeded by H. L. Atto, formerly assistant superintendent there.

J. P. Allison, assistant superintendent of the Marion division of the Erie at Chicago, has been advanced to superintendent



J. P. Allison

of the division at Huntington, Ind., succeeding T. J. Murphy, who has retired after 48 years' service. F. J. Mulligan, trainmaster at Marion, Ohio, has been promoted to assistant superintendent of the Marion division at Chicago, succeeding Mr. Allison.

Newton Gibbs, superintendent of organization of the Railway Express Agency at Atlanta, Ga., has been named representative on the company standard practices committee, succeeding W. M. Mathews, whose promotion to general superintendent of organization at New York was announced in the October 27 issue of Railway Age, along with his photograph and an account of his career. Samuel D. Stainton, superintendent of the Georgia division, succeeds Mr. Gibbs, while Orman W. Harding, previously attached to the president's office in New York, succeeds Mr. Stainton, with headquarters at Atlanta.

TRAFFIC

George Brunner, general eastern freight agent of the Missouri Pacific at New York, has been appointed eastern traffic manager there, in charge of the agencies at New York, Philadelphia (Pa.), Boston (Mass.), and Buffalo (N. Y.).

S. S. Hosp, whose appointment as assistant freight traffic manager of the Norfolk & Western at Roanoke, Va., was announced



S. S. Hosp

in the November 10 issue of Railway Age, was born in Moline, Ill., and entered the service of the Norfolk & Western as commercial agent at Minneapolis, Minn., in July, 1920. He served in that capacity until 1934, when he was promoted to general agent at Pittsburgh, Pa. In 1939, he became general freight agent in charge of solicitation in eastern territory, with headquarters at Roanoke, the position he held at the time of his recent appointment.

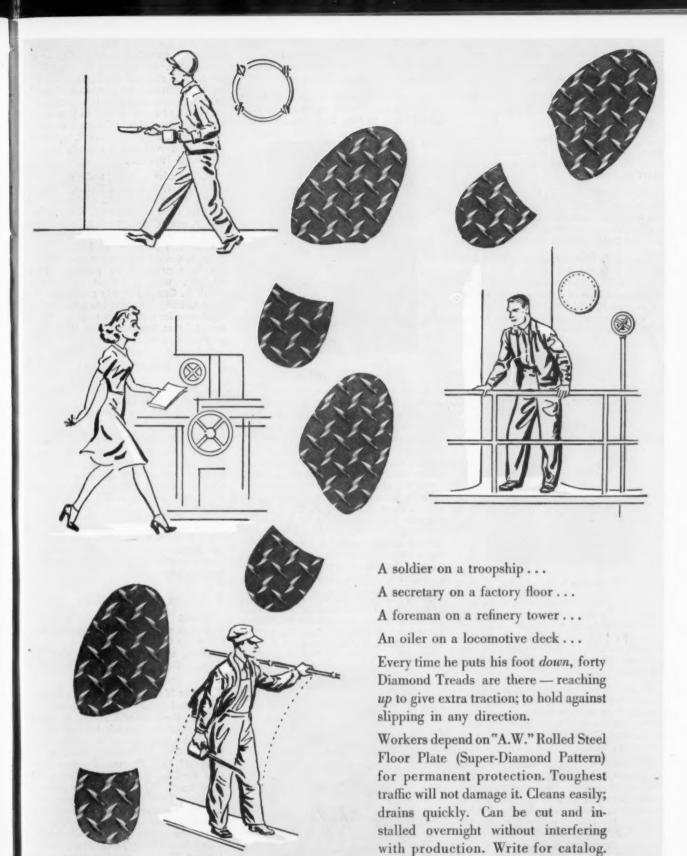
E. M. Dudley, whose appointment as assistant freight traffic manager of the Norfolk & Western at Roanoke, Va., was announced in the November 10 issue of Railway Age, was born in Schuyler, Va., and entered the service of the Norfolk & Western in 1918 as a clerk in the transportation department at Petersburg, Va. He was promoted to chief clerk in the division freight agent's office at Winston-Salem, N. C., in April, 1925, and a year later was appointed assistant foreign freight agent at Chicago. He became foreign freight



E. M. Dudley

agent in 1937 and general western freight agent in 1937, remaining at Chicago. Mr. Dudley was advanced to general freight

Nov



:: District Offices and Representatives:

SINCE 1826 :: Philadelphia

New York

CONSHOHOCKEN, PENNSYLVANIA Boston

Los Angeles

Atlanta

Houston San Francisco

Buffalo St. Paul

Chicago **New Orleans** Seattle Montreal

Cleveland Cincinnati Pittsburgh

agent in charge of solicitation in western territory, with headquarters at Roanoke, Va., in May, 1939, the post he maintained until his recent appointment.

John A. Rush has been appointed district freight agent of the Southern at Cleveland, Ohio.

John Millard Sparling, division freight agent of the Canadian National at Portland, Me., has retired after nearly fifty years' service.

W. M. Cook, assistant traffic manager of the Missouri Pacific at San Francisco, Cal., has been appointed western traffic manager, a newly-created position. The position of assistant traffic manager has been abolished.

Martin J. Murphy, whose appointment as coal freight agent of the New York Central at New York was announced in the November 3 issue of Railway Age, was born on August 8, 1891, in North Tarrytown, N. Y., and began his railroad career in 1907 in the telegraph office of the New York



Martin J. Murphy

Central at New York, changing to the coal department within a few months. He was made general agent in February, 1929, and advanced to assistant coal freight agent in August, 1936. Mr. Murphy's recent appointment as coal freight agent became effective on November 1.

F. L. Colvin, who has been on leave of absence from the Kansas City Southern for the past three years to serve with the armed forces, has returned to his former position of general agent, with headquarters at Beaumont, Tex.

Freeman W. Jones, whose retirement as general freight agent of the Norfolk & Western at Roanoke, Va., was announced in the November 10 issue of Railway Age, was born at Lawrenceville, Va., on October 7, 1876. He entered railroading with the Norfolk & Western as a clerk in the transportation department at Petersburg, Va., in July, 1899. Mr. Jones subsequently served at the same point as assistant ticket agent, ticket agent, and assistant freight and passenger agent. He then became successively commercial agent at Charlotte, N. C., service agent at Winston-Salem, N. C., traveling agent for the car record department, general agent at Richmond, Va., division freight agent at Winston-Salem, and general agent at Cincinnati, Ohio. He was advanced to assistant general freight agent at Columbus, Ohio, in February, 1927. Mr. Jones assumed the position from which he has retired in March, 1934.

Richard K. Horton, whose appointment as general coal freight agent of the New York Central at New York was announced



Richard K. Horton

in the November 3 issue of Railway Age, was born in Port Byron, N. Y., on October 14, 1885, and entered railroad service in the division freight agent's office of the New York Central at Syracuse, N. Y., in 1903. He transferred to Rochester, N. Y., in 1910 as chief clerk to division freight agent, and was advanced there to contracting freight agent in 1914. In January, 1929, Mr. Horton became general agent at Buffalo, N. Y., in June of the same year, division freight and passenger agent at Corning, N. Y., and in October, division freight agent at Rochester. He was advanced to coal freight agent at New York in August, 1936, and maintained this post until the time of his recent promotion.

Joseph R. O'Malia, whose advancement to general coal traffic manager of the New York Central was announced in the November 3 issue of *Railway Age*, was born in Rosendale, N. Y., on December 3, 1890,



Joseph R. O'Malia

and entered railroad service at Chicago with the Chicago, Indiana & Southern and the Indiana Harbor Belt subsidiaries of the New York Central. He served subsequently in the traffic, operating, and executive departments of the New York Central System at Chicago from 1907 to 1926 when he was appointed general agent at St. Paul, Minn. He became coal and ore agent in the coal traffic department at Cleveland, Ohio, in 1927, then was advanced to assistant general coal and ore agent and to general coal and ore agent. Mr. O'Malia was named coal traffic manager, New York, in January, 1932, and served in this capacity until his recent appointment.

A. P. Smirl, assistant traffic manager of the Texas & Pacific at Dallas, Tex., has been promoted to freight traffic manager, with the same headquarters. Carl Schonfelder, general freight agent, has also been advanced to freight traffic manager, with headquarters as before at Dallas. Frank Jensen, general passenger agent at Dallas, has been promoted to passenger traffic manager, with the same headquarters. Mark L. Craig, formerly general agent at New Orleans, La., who has been on leave of absence for three years to serve with the armed forces, has returned to the T. & P. as general agent at Dallas.

MECHANICAL

J. M. Sikes has been appointed superintendent of motive power of the Savannah & Atlanta, with headquarters at Savannah, Ga.

William J. Crabbs, mechanical engineer for the Western Maryland at Hagerstown, Md., before entering military service, has recently returned to join the Atlantic Coast Line as mechanical engineer with headquarters in Wilmington, N. C.

Robert Schey has been appointed superintendent of the car department of the New York, Chicago & St. Louis, with headquarters at Cleveland, Ohio. The position of general superintendent car department has been abolished.

OBITUARY

Alfred J. Musser, who retired in August as vice-president and general manager of the Clearfield Bituminous Coal Corporation, a subsidiary of the New York Central, died on November 8 in Indiana, Pa.

Oliver Maxey, superintendent of station service and freight claim prevention of the Chicago, Rock Island & Pacific at Chicago, whose death on October 16, was reported in the Railway Age of November 3, was born in Cherokee County, Kan., on September 17, 1874. He entered railway service with the St. Louis-San Francisco in 1891 as an agent, and one year later joined the Atchison, Topeka & Santa Fe in a similar capacity, working at various points of that road in Kansas until January, 1900, when he became cashier for the Rock Island at Kingfisher, Okla. From May, 1902, to January, 1910, he served as agent at Lawton, Okla.; Topeka, Kan.; and Fort Worth, Tex. In June of the latter year he was promoted to supervisor of weights with headquarters at Chicago, being further advanced in August, 1920, to general supervisor of claim prevention with the same headquarters. In January, 1937, he was promoted to the position he held at the time of death.

Coming!

A NEW TRAIN
A NEW NAME

The SUNSHINE Eagle

To Continue a 30-Year Tradition of Fine Travel Service in the Southwest

Orders have been placed by the Missouri Pacific Lines and Texas & Pacific Railway for \$9,000,000 worth of new equipment for The Sunshine Special—eight Diesel-electric locomotives and 100 cars of light weight, streamlined construction, designed to assure the highest standards of travel safety, convenience and comfort.

Upon their delivery, now scheduled for the late summer of 1946, The Sunshine Special will give way to The Sunshine Eagle, a new train with a new name, well prepared to maintain the 30-year record of Sunshine travel leadership throughout the Southwest.

A A A

Operating through the same territory served by The Sunshine Special since December 5, 1915, The Sunshine Eagle will provide through service daily, with greatly improved schedules, between St. Louis-Memphis and principal cities of Texas, Louisiana and Arkansas.



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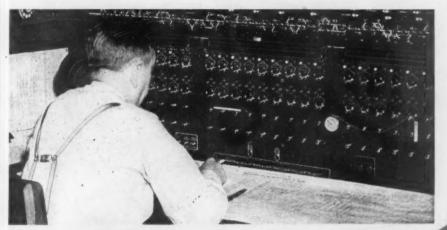
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"UNION" C.T. C.



HELM

URY

CROCKER

SWEDEBORG-

RICHLAND

GARNSEY

STOUTLAND

SLEEPER

UNION SWITCH & SIGNAL COMPANY

SWISSVALE

NEW YORK

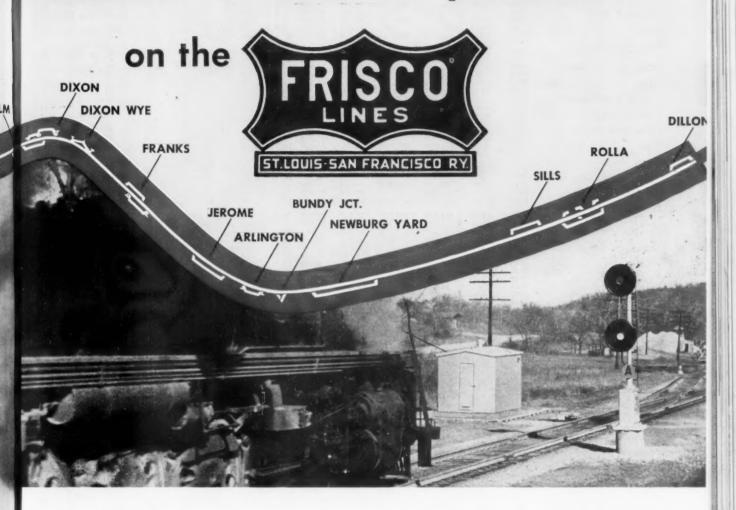
CHICAGO



PENNSYLVANIA

ST. LOUIS SAN FRANCISCO

solved a difficult problem



Five years ago, 18 trains and 10 helper movements constituted a normal day's traffic on the single track with its heavy grades between Dillon, Mo., and Sleeper, on the St. Louis-San Francisco Railway.

Location of army camps and war industries in the area served, together with a huge increase in traffic from other parts of the country, resulted in an ultimate increase to an average of 42 trains and 27 helper movements each 24 hours. Delays mounted; facilities were strained almost to the breaking point—until "Union" C.T.C. was installed.

Here's what happened then, according to actual studies of typical operating periods with approximately the same number of train movements before and after C.T.C. operation:

74
257
5
64

"Union" engineers will be glad to cooperate in studying the advantages of C.T.C. on your line.

Freight Operating Statistics of Large Steam Railways—Selected

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Railway

			Locomotive-miles		Car-miles		Ton-miles	(thousands)	Road locos, on line				
	Miles of	Train-	Principal	1	Loaded (thou-		Gross excl. locos.	Net- rev. and	Service	able		Per cent	
Region, road, and year	operated		helper	Light	sands)	loaded	& tenders	non-rev.	Unstored	Stored	В. О.		
New England Region: Boston & Albany	362 362	160,473 171,838	177.734 201,692	23,533 36,416	3,538 4,316	66.7 62.1	227,816 290,025	99,304 121,214	- 60 - 77		28 17	31.8 18.1	
Boston & Maine	1,777	330,827 379,639	344,081 429,048	15,625 38,933	12,498 13,534	70.0 68.1	788,629 877,394	355,316 398,540	123 161	i	21 20	14.5	
N. Y., New H. & Hartf. 1945	1,815	417,310 480,840	574,861 585,903	51,377 56,828	16,028 17,675	71.5	951,242 1,097,261	423,829 481,529	209 223	27	36 40	16.2 16.4	
Great Lakes Region: Delaware & Hudson	846	284,433	347,570	35,261	12,087	66.4	869,036	457,772	118	67	33	15.1	
Del., Lack. & Western 1945	846 971	328,688 352,167	403,062 398,980	37,067 49,177	13,850 14,924	67.3 69.8	1,000,690 989,409	535,859 466,005	131 122	49 35	38 48	17.4 23.4	
Erie1944	971 2,243	361,317 781,561	420,937 824,159	64,007 64,258	15,617 37,439	69.5	1,034,293 2,396,801	496,053 1,033,964	137 297	29 35	32 61	16.2 15.5	
Grand Trunk Western1945	2,244 1,026	946,841 263,315	1,018,759 270,192	78,200 1,911	44,725 7,974	68.3	510,775	1,282,809 232,561	327 65	20	54 12	13.5 15.4	
Lehigh Valley	1,026 1,246	260,274 377,789	265,426 419,780	2,203 62,546	8,270 16,539	66.6	532,803 1,162,429	237,941 583,895	67 131	27	13 11	16.3 6.5	
New York Central1945	1,247	559,541 3,293,790	621,548 3,539,707	87,298 231,690	23,890 121,259	59.7 64.2	1,739,806 8,376,649	818,436 3,924,090	155 1,064	65	12 250	7.2 18.1	
New York, Chi. & St. L 1945	1,656	3,694,026 652,049 815,814	3,539,707 3,973,403 665,965	236,539 8,282	141,844 26,408 32,619	63.3 70.5 67.5	9,931,951 1,667,687	757,616 963,447	1,118 152 175	35 23	223 26 17	16.2 12.9	
Pere Marquette	1,657 1,915 1,915	404.005	830,203 421,472 454 912	9,542 12,197 10,227	14,004	68.5 65.5	2,130,187	436,987 489,555	129 142	6 7 3	25 26	8.6 15.5 15.2	
Pitts. & Lake Erie	229 229	441,880 91,300 95,475 680,700	454,912 92,304 99,964 700,592	56 14	15,324 3,729 4,356	64.9 68.5	1,039,289 314,232 368,261	183,806 224,011	37 36		13	26.0 20.0	
Wabash	2,381 2,381	680,700 761,412	700,592 781,010	16,476 18,715	23,857 27,539	71.7 69.4	1,510,812 1,788,201	690,017 818,459	160 173	2 3	49 45	23.2	
Central Eastern Region: Baltimore & Ohio	6,095	2,242,428	2,791,572	309,682	78,925	64.2	5,778,523	2,912,885	901	16	260	22.1	
Central of New Jersey†1945	6,113 654	2,553,603 190,468	3,194,158 219,965	331,172 44,848	89,748 7,158	63.4 65.8	6,607,220 508,676	269,579	958 103	17	199 32	17.2 21.1	
Chicago & Eastern III 1945	655 912	241,600 259,544	285,T67 261,871	60,536 5,550	9,050 6,995	62.3	678,401 476,994	336,946 223,819	115	7 4	25 6	17.0 7.6	
Elgin, Joliet & Eastern 1944 1945 1944	912 392	300,287 106,605	306,354 111,607	8,447 3,363	9,184 3,088	60.8 66.5	650,909 235,725	297,947 137,020	76 47	7	20	27.0	
Long Island	392 372	133,365	137,837 49,460	3,386	3,807 672	67.7 54.0	294,513 46,996	161,314 16,388	57 51		17	23.0 5.6	
Pennsylvania System1945	372 10,024 9,872	42,063 4,036,509 4,743,541	43,830 4,711,231 5,512,945	16,482 680,210 712,598	546 156,689 185,110		38,475 11,340,058 13,288,144	14,951 5,596,337 6,562,976	48 1,961 2,015	93	172 177	5.9 7.7 8.1	
Reading	1,365	514,212 607,376	570,209 682,438	68,775 84,898	17,214	64.9	1,317,002 1,492,150	720,574 813,260	263 257	27 16	42 46	12.7 14.4	
Pocahontas Region: Chesapeake & Ohio		1,068,198	1,144,366	50,632	49,249	57.7	4,207,677		449	5	65	12.5	
Norfolk & Western 1945	3,032 2,139	1,139,514 683,293	1,227,358 727,106	60,960 53,937	54,219 32,165	57.7 60.3	4,705,893 2,716,161	2,716,862	426 235	18 51	71 20	13.8	
Southern Region:	2,132	810,457	860,970	58,064	38,427	59.3	3,307,463	1,793,259	281	30	19	5.8	
Atlantic Coast Line1945	4,926	832,016 918,870	842,515 932,582 317,807	12,585 14,288	21,697 24,597	65.5 64.8	1,422,976 1,653,297	651,136 753,243	374 365	6 15	27 35	6.6 8.4	
Central of Georgia†1945	1,783 1,783 1,931	311,479 384,177	317,807 395,180 403,439	6,071 6,146	7,508 9,081	69.4	498,975 612,091	233,162 284,822	95 94		11	10.5	
Gulf, Mobile & Ohio	1,941	316,473	376,820	3,461 4,038	9,081 11,381 11,183	73.0 73.9	729,058 716,209	351,297 352,175	102 108	1	11	9.6 9.9	
Illinois Central (incl. 1945 Yazoo & Miss. Vy.) 1944 Louisville & Nashville 1945	6,346 6,347 4,745	1,483,796 1,704,090 1,483,961	1,504,216 1,714,780 1,611,796	50,426 31,428 41,861	54,971 66,139 37,930	63.6 63.2 63.7	3,812,213 4,627,898 2,689,635	1,780,092 2,168,957 1,361,610	608 656 401	29 17	53 49 64	7.7	
Seaboard Air Line* 1945	4,734 4,157	1,634,131 734,983	1,752,714 766,927	45,474 18,491	42,645 21,562	64.0 68.8	3,061,630 1,391,482	1,577,764 632,478	404 257	22 30	65 46	13.3 13.2 13.8	
Southern	4,161	864,570 1,970,252	937,757 2,000,823	15,023 34,684	24,817 45,420	67.5 70.5	1,643,630	763,598 1,318,628	292 610	6 3	44 105	12.9	
Northwestern Region:		2,295,099	2,358,016	40,506	52,976	68.5	3,414,276	1,573,252	605		90	12.9	
Chi. & North Western 1945	8,074	1,144,827 1,101,115	1,194,742 1,154,370	27,417 23,760	36,902 36,426	66.7	2,569,397 1 2,514,182		390 374	15 12	106 90	20.7 18.9	
Chicago Great Western1945 1944	1,445 1,445	275,243 284,928	279,389 292,598	10,271 7,037	8,795 9,449	71.3 72.6	571,241 596,034	255,130 268,425	75 74		7 8	8.5 9.8	
Chi., Milw., St. P. & Pac.† 1945 1944	10,715	1,567,090 1,610,827	1,670,877 1,713,360	100,118 85,585		64.6 68.2	3,727,540 1 3,761,129 1	1,793,784	518 519	18 31	74 66	12.1 10.7	
Chi., St. P., Minneap. & Om. 1945	1,606 1,606	222,275 217,181	245,257 232,508	14,468 12,585 1,492	6,133 5,824	73.3	407,764 390,607	197,763 179,098	89 98	27	36 12	26.9 8.8	
Duluth, Missabe & I. R1945 1944	546 546	171,894 175,975 1,219,270	172,841 176,897	1,382	9,440 9,717	51.1	869,148 903,991	531,305 555,109	47 53	22	1 1	1.9	
Great Northern	8,275 8,276 4,259	1,350,301	1,220,207 1,351,160 483,476	55,930 52,713 10,249	51,243 54,135 12,782 12,897	66.1 65.7 61.4	3,717,813 1 3,973,812 2 917,035	1,845,807 2,008,136 424,858	410 412 126	23 24 1	48 40 15	10.0 8.4 10.6	
Northern Pacific	4,259 6,577	1,350,301 470,729 459,287 1,044,746	471,017 1,116,053	8,697 82,490	12,897	64.3	905,654	431,594 1,428,700	126 385	1 6	7 55	5.2 12.3	
Central Western Region:	6,5/1	1,042,118	1,121,597	90,137	43,453 45,260	70.5	3,061,801	1,488,244	377	13	60	13.3	
Alton†1945	915 915	253,827 281,836	266,599 300,034	820 420	6,554 8,037 121,265	70.4	433,769 516,184	207,665 259,039	72 75	1	8	9.9 3.8	
Atch., Top. & S. Fe (incl. 1945 G. C. & S. F. & P. & S. F.) 1944 Chi., Burl. & Quincy 1945	13,115 13,093	281,836 3,567,695 3,604,152	3,772,552 3,859,282 1,521,246	179,703 218,565	133,859	60.6	8,558,807 3 8,972,758 3 3,915,495	3,379,417 3,639,557	908 864	2 4	131 121	12.6 12.2	
1944	8,768 8,791	1,441,855	1,521,246 1,572,159 1,473,204	63,710 51,391	55,692 57,205	65.6	3,960,391	1,858,484	440 476		78 65	15.1 12.0	
Chi., Rock I. & Pac.†1945	7,718	1,438,762 1,450,461	1,518,938	17,096 13,705	44,515 45,474	67.9 69.3	2,925,201 1 2,964,162 1	1,359,837	368 397	· · · · · · · · · · · · · · · · · · ·	86 72	18.9 15.4	
Denver & R. G. Wn.†1945 1944 Countries Pacific Pac Lines 1945	2,386 2,388 9 179	492,632 489,333 2,296,898	553,581 547,699	88,805 79,597	17,643 17,574 97,228	75.2 77.4 67.1	1,097,349 1,093,740	508,037 532,385 2,546,456	180 177 780	6	35 47 169	15.8 20.4 17.8	
Southern Pacific—Pac. Lines 1945 1944 Union Pacific	8,193	2,296,898 2,440,319 3,338,718	2,629,533 2,797,483 3,544,417	410,129 429,441 300,471	105,689 126,689	69.4 68.0		2,928,939	897 820	40	105 86	10.5	
Southwestern Region:		3,115,658	3,309,964	263,755	125,888	71.4	7,920,613	3,572,674	787	31	72	8.1	
MoKansTexas Lines 1945	3,241	631,456 786,920	650,639 810,446	12,676 16,648	17,564 21,285	65.6 61.4	1,148,037 1,449,738	513,342 644,523	146 153		19 18	11.5 10.5	
Missouri Pacific†	7,056	1,575,906 1,751,257	1,653,783 1,811,590	44,193	54,653 64,554	64.3	3,767,444 1 4,294,903 1	1,699,578 1,956,021	454 485	2	73 58	13.9 10.6	
Texas & Pacific	1,871 1,882	491,331 451,466	491,331 451,466	10,318 6,625	14,006 15,183	61.7	992,595 1,008,713	403,861 415,472	142 131	7	13	8.0 3.4	
St. Louis-San Francisco†1945	4,615 4,616	1,109,340 1,093,571	1,178,058 1,179,820	16,341 26,321	26,652 27.688	63.3	1,838,517 1,818,990	823,256 836,504	315 316		33 34	9.5 9.7	
St. Louis-San Fran. & Texas 1945	161 159	35,836 35,132	38,389 36,572	5 28	569 608	66.3 73.8	37,650 37,098	15,856 16,756	9				
St. Louis Southw. Lines†1945	1,600	383,975 487,738 931,828	386,840 493,537	5,233 7,011	13,990	71.7	853,004 1,152,618	381,305 535,330 715,647	107 115	10 2 1	30 23	20.4 16.4	
Texas & New Orleans 1945 1944	4,325	1,173,342	932,826 1,176,032	22,283 47,176	25,008 32,189	66.3	1,648,592 2,104,198	943,204	233 269		44 17	15.8 5.9	
* Depart of manipums													

^{*} Report of receivers.
† Report of trustee or trustees.

Items for the Month of August 1945 Compared with August 1944

		Freight ca	rs on line	G.t.m. per G.t.m. per train-hr. train-mi.			Net ton-mi.	Net ton-mi.		Car		Coal lb. per	Mi. per
Region, road, and year	Home	Foreign	Total	Per Cent B. O.	excl.locos. and tenders		per train- mile	per l'd. car- mile	per car- day	per car- day	ton-mi. per road-mi.	g.t.m. inc. loco.	per
New England Region: Boston & Albany1945	235	5,112	5,347	0.4	23,351	1,433	625	28.1	572	30.6	8,849	196	80.4
Boston & Maine	362 1,927	6,024 11,644	6,386 13,571	0.4	25,176 36,812	1,694 2,391	708 1,077	28.1 28.4	665 867	38.1 43.6	10,801	170 100	91.0 82.5
N. Y., New H. & Hartf.† 1945	2,503 1,964	10,422 18,029	12,925 19,993	3.5	35,885 32,315	2,321 2,285	1,054	29.4 26.4	993 681	49.5 36.0	6,450 7,115 7,533	95 83	91.2 79.7
Great Lakes Region:	3,678	20,613	24,291	4.0	33,988	2,317	1,017	27.2	659	35.8	8,558	95	83.9
Delaware & Hudson1945	3,653 3,624	6,568	10,221 9,720	3.8	52,816 51,181	3,075 3,060	1,620 1,639	37.9 38.7	1,479	58.8 70.8	17,455 20,432	100 97	59.2 69.1
Del., Lack. & Western 1945 1944	5,231 5,605	6,096 10,797 12,837	16,028 18,442	4.1 3.6	43,078 40,722	2,839 2,892	1,337	31.2 31.8	901 859	41.3 38.9	15,481 16,480	104 113	77.1 86.4
Erie1945	8,534 7,522	27,009 32,009	35,543 39,531	4.2 3.0	50,591 50,704	3,093	1,334	27.6 28.7	898 1,056	47.7 53.9	14,870 18,441	92 87	79.8 95.7
Grand Trunk Western 1945 1944	2,686 2,578	7,719 6,197	10,405 8,775	6.7	38,979 41,782	1,953 2,058	889 919	29.2 28.8	718 781	35.7 40.2	7,312 7,481	85 79	122.5 118.5
Lehigh Valley	6,615	18,148 21,135	24,763 27,436	3.5	52,211 51,911	3,189 3,221	1,602 1,515	35.3 34.3	780 917	33.2 44.9	15,117 21,172	96 100	97.3 143.6
New York Central1945	42,581 44,279	95,427 101,353	138,008 145,632	4.3 3.2	41,040 43,283	2,581 2,718	1,209	32.4 32.8	929 1,029	44.7	12,253	102 96	97.7 108.9
New York, Chi. & St. L1945	2,179 2,655	12,946 10,704	15,125	2.6	48,867 48,721	2,567 2,621	1,166	28.7	1,578	78.0 97.1	14,758	84 84	115.7
Pere Marquette	3,428 2,253	9,483 10,003	12,911	2.5	40,545 40,450	2,312 2,374	1,099	31.2 31.9	1,124	52.6	7,361 8,247 25,892	83 85 71	92.6 93.7 64.1
Pitts. & Lake Erie1945	2,806 3,597	9,316	12,953 12,913 18,405	5.2 4.6 4.9	51,286 53,472	3,451 3,857 2,242	2,019 2,346 1,024	49.3 51.4 28.9	431 555 1,178	13.5 15.8 56.8	31,555 9,348	82 103	79.4
Wabash	6,032 5,952	12,373 12,715	18,667	3.7	43,878 45,951	2,364	1,082	29.7	1,361	66.0	11,089	97	121.6
Central Eastern Region: Baltimore & Ohio	41,338 39,803	50,214 57,335	91,552 97,138	5.0	31,786 30,956	2,636	1,329	36.9 36.8	1,024 1,083	43.2	15,417 17,417	139 137	88.1 102.5
Central of New Jersey†1945	3,462 6,872	14,059 14,757	17,521 21,629	7.4	32,984 34,157	2,647 2,777 2,819	1,472	37.7 37.2	484 506	19.5	13,297	111	73.7 96.5
Chicago & Eastern Ill 1945	2,145 2,311	4,123 4,619	6,268	5.8	35,006 37,839	1,901 2,221	892 1,017	32.0 32.4	1,137 1,290	54.8 65.4	7,917	111	109.7 122.9
Elgin, Joliet & Eastern 1945	8,226 9,095	5,648 6,126	13,874 15,221	2.7	19,629 19,203	2,338 2,344	1,359 1,284	44.4 42.4	319 346	10.8 12.1	11,276 13,275	131 124	70.1 86.6
Long Island	19 36	5,132 5,922	5,151 5,958	.5	7,613 7,423	1,010 941	352 366	24.4 27.4	95 81	7.2 5.3	1,421 1,296	253 288	58.0 56.4
Pennsylvania System1945 1944	115,836 113,949	119,735 128,262	285,571 242,211	5.7 3.5	39,736 39,158	2,899	1,431	35.7 35.5	771 869	33.7	18,009 21,445	118 110	84.8 99.1
Reading	11,577 12,535	22,865 26,478	34,442 39,013	2.3	33,210 30,703	2,565 2,459	1,403	41.9	689 684	25.3	17,029 18,619	101 111	72.0 88.5
Pocahontas Region: Chesapeake & Ohio1945	37,096	18,481	55,577	2.1	58,129	3,987	2,284	48.9	1,392	49.3	25,574	72	80.7
Norfolk & Western 1944 1945 1944	33,645	7,109	52,267 35,670	1.3	58,766 63,845	4,177 4,031	2,412	50.1 46.0	1,670	57.7 47.7	28,905 22,298	71 82	87.7 90.1
Southern Region: Atlantic Coast Line1945	30,960 7,448	8,674 15,968	39,634 23,416	2.0	64,940 27,616	4,138 1,724	789	46.7 30.0	1,463 881	52.9	27,133 4,264	83 119	96.9 71.0
Central of Georgia†1945	7,442	15,550 6,631	22,992 8,427	2.7	30,502 29,252	1,809 1,608	824 751	30.6 31.1	1,049	52.9 41.0	4,906 4,218	103	77.4 108.4
Gulf, Mobile & Ohio 1945	1,899 1,885	7,115 8,340	9,014 10,225	1.5	30,002 39,556	1,609 2,310	749 1,113	31.4	1,068	51.5	5,153 5,869	122	129.9 121.0
Illinois Central (incl. 1944	2,111 20,781	6,778 31,054	8,889 51,835	1.0	41,361 42,971	2,396	1,178	31.5	1,281	55.0 53.0	5,853	107 112	105.0 76.2
Yazoo & Miss. Vy.) 1944 Louisville & Nashville 1945	18,837 29,552	37,350 15,713	56,187 45,265	1.1 5.9	44,595 29,128	2,774 1,813	1,300 918	32.8 35.9	1,302 965	62.9 42.2	11,024 9,257	107 121	83.9 115.3
Seaboard Air Line*	28,748 5,671	14,911 15,503	43,659 21,174	3.7	29,374 33,148	1,874 1,921	966 873	37.0 29.3	1,154 952	48.8 47.2	10,751 4,908	122 116	125.8 84.9
Southern	6,357	16,281 32,735	22,638 46,073	1.8 3.3	32,778 24,974	1,940 1,471	901 680	30.8 29.0	1,082 917	52.1 44.8	5,920 6,573	130 140	99.2 96.1
Northwestern Region: Chi. & North Western 1945	15,845	34,686	50,531	2.3	25,557	1,512	697	29.7	1,013	49.8	7,843	138	117.5
Chi. & North Western 1945 1944 Chicago Great Western 1945	20,647 22,099 1,069	34,475 34,429 4,473	55,122 56,528 5,542	4.0 3.2	34,524 35,557 36,084	2,338	1,058 1,064 931	31.5 31.0 29.0	698	33.2	4,651	114	85.7 85.0
Chi., Milw., St. P. & Pac. 1945	1,007 22,612	4,728 37,025	5,735 59,637	4.0 1.9 2.0	36,071 37,985	2,084 2,100 2,404	946 1,110	28.4 31.9	1,481 1,465 945	71.6 71.0 45.8	5,695 5,992 5,179	116 113 111	120.4 124.7 100.9
Chi., St. P., Minneap. & Om. 1945	23,840	33,280 7,140	57,120 8,056	1.8	36,561 24,360	2,359 1,884	1,125	31.9	1,045	48.0 35.6	5,400 3,972	111	102.4
Duluth, Missabe & I. R 1945	822 14,449	7,096 350	7,918 14,799	4.7	24,898 89,946	1,842 5,237	844 3,201	30.8 56.3	783 1,151	37.2 40.0	3,597 31,390	101	61.8 138.6
Great Northern	15,146 20,765	567 24 841	15,713 45,606	2.7 2.7 2.6	91,655 46,648	5,269 3,074	3,236 1,526	57.1 36.0	1,153 1,245	39.7 52.3	32,796 7,195	56 86	125.8
Min., St. P. & S. St. M 1945	22,531 5,665	21,429 9,218	43,960	1.8	45,097 34,022	2,960	1,496 916	37.1 33.2	1,531	62.8 49.6	7,827 3,218	86 87	102.9 115.7
Northern Pacific	6,396 15,457	21,429 9,218 8,315 23,860	14,883 14,711 39,317	2.5	33,954 42,241	1,998 2,873	952 1,382	33.5 32.9	1,000 1,194	46.5 52.2	3,269 7,007	85 118	93.9
Central Western Region:	17,197	22,721	39,918	2.6	44,432	2,951	1,434	32.9	1,231	53.1	7,306	117	95.0
Alton†	1,832	6,459 7,499	8,780 9,331 88,587	1.5	37,285 40,321	1,728 1,844	827 926	31.7	790 909	35.4 38.8	7,321 9,132	115	115.1 129.4
Atch., Top. & S. Fe (incl. 1945 G. C. & S. F. & P. & S. F.) 1944 Chi., Burl. & Quincy 1945	40,462 43,161 18,477	48,125 52,885 26,555	88,587 96,046 45,032	4.4 2.9 2.9	41,858 43,642 42,220	2,418 2,506	955 1,016 1,282	27.9 27.2	1,130	66.9	8,312 8,967	111	128.1
Chi., Rock I. & Pac.† 1944	17,516	31,116 22,857	48,632 33,936	2.1	41,521 35,301	2,729 2,655 2,053	1,246	33.0 32.5 30.0	1,307 1,299 1,242	61.2 61.0 61.0	6,770 6,820 5,582	95 101 105	106.4 103:0 110.5
Denver & R. G. Wn.† 1945	10,369	24,004 8,323	34,373 15,965	3.1 5.3	35,975 35,229	2,054	942	29.9 28.8	1,267	61.1	5,684 6,869	103	110.5
Southern Pacific—Pac. Lines 1945	7,944 23,567	10,712 66,100	18,656 89,667	3.4 2.5	35,369 35,903	2,262 2,791	1,101	30.3	969 909	41.3	7,192	158 100	95.3 110.9
Union Pacific	25,122 26,586	59,331 50,915	84,453 77,501	2.5	38,369 45,941	2,837 2,485	1,209	27.7 28.3	1,127	58.6 76.3	11,532	96 120	112.2 133.8
Southwestern Region: 1944	27,776	42,222	69,998	2.4	49,239	2,569	1,159	28.4	1,667	82.2	11,782	115	135.1
MoKansTexas Lines 1945 1944 Miscouri Pacifet	1,359	7,940 8,559	9,299	.2	33,458 33,127	1,828 1,851	817 823	30.3	1,756 1,999	91.5 107.6	5,109 6,415	82 79	135.3 163.2
Missouri Pacific†	13,572	25,196 29,089	38,768	1.6	38,998 40,799	2,409	1,087	31.1	1,374	68.7 76.6	7,770 8,923	104	109.4
St. Louis-San Francisco†1945	1,654 1,324 6,804	7,600 7,735	9,254 9,059 22,265	1.8 1.3	37,942 42,354 31,781	2,075 2,252 1,667	844 928 746	27.4	1,376 1,532	77.3 86.0	6,963 7,121 5,754		107.8
St. Louis-San Francisco 1944 St. Louis-San Fran. & Texas 1945	6,382	15,461 13,231 308	19,613	1.8 2.0 3.9	32,569 20,198	1,667 1,670 1,051	768 442	30.9 30.2 27.9	1,235 1,363 1,552	63.2 67.0 84.0	5,754 5,846 3,177	124	115.8 116.0 148.1
St. Louis Southw. Lines†1945	1,025	299 5.726	299 6,751	10.4	21,407 37,625	1,056	477 994	27.6 27.3	1,569 1,683	77.2 86.1	3,399 7,688		127.3 95.0
Texas & New Orleans 1945	1,097 3,673	6,504 17,443 17,982	7,601 21,116	1.6	38,483 32,193 32,279	2,371 1,784	1,101 775	29.6	2,158	105.7	10,793 5,338	76 89	120.0 114.0
1944	3,518	17,982	21,500	2.5	32,279	1,815	814	29.3	1,064 1,380	69.4	7,022		144.9

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

1945



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Railway Lighting Ideas

by LURELLE GUILD



Fluorescent Lamps and Electric Light Bulbs by SYLVANIA

"In properly lighting a comparatively new type railway car—the smoker-coach—two basic principles should be considered," suggests Lurelle Guild, noted industrial designer.

"These are," he continues, "first, that high level general illumination should be provided for—glare-free, diffused, cool. And, as shown above, this high-intensity lighting is most adequately supplied through the use of long lines of fluorescent tubing at the headliner, extending the entire length of the car.

"Secondly, provision should be made for personal lighting comfort. Here again fluorescent illumination plays its part. Beneath the baggage ramp—along the outer edge—fluorescent lamps shed soft, easy-on-the-cyes, shadow-free lighting . . . while above each window built-in incandescent lighting supplements this fluorescent illumination, affording the best in lighting comfort."

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THIS huge mileage was rolled up on the difficult "Commodore Vanderbilt" run between Harmon and Chicago, during August and September. Average haul was 14 to 15 heavy Pullmans at 56.2 miles per hour over the 925 mile run.

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Because of its great speed, power and extraordinary design flexibility, the "Niagara" can be operated without sacrifice of efficiency in either fast freight or passenger service.

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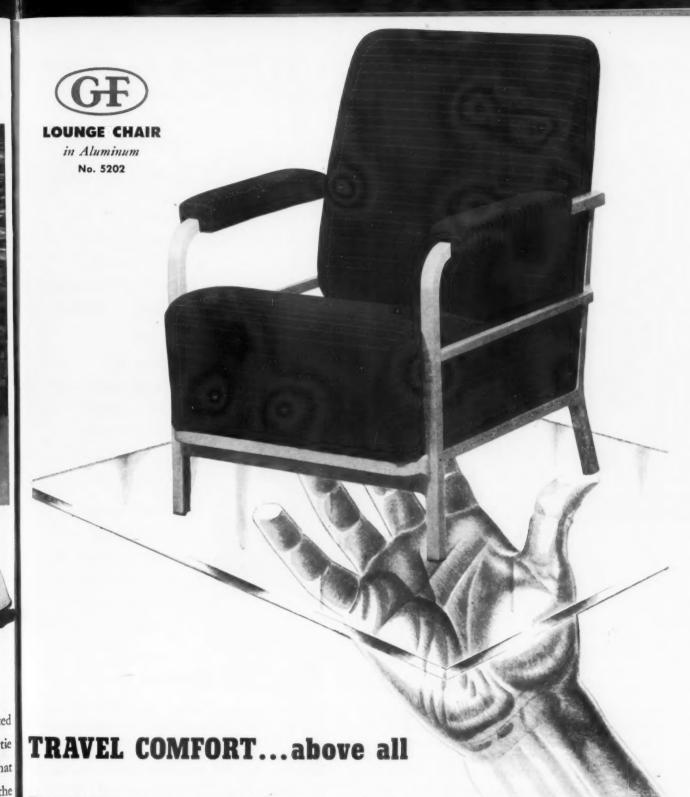
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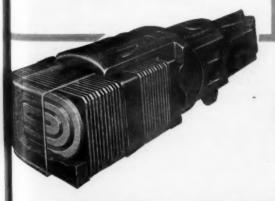
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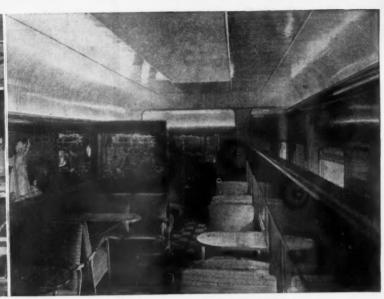
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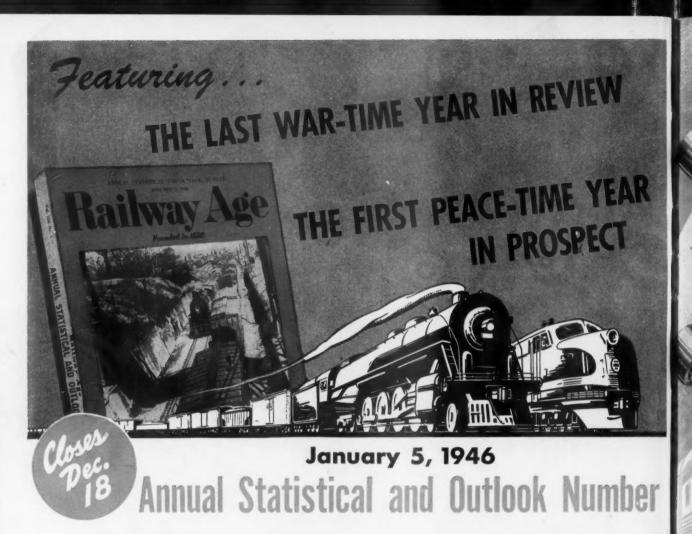
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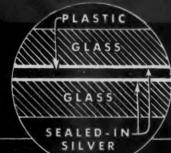
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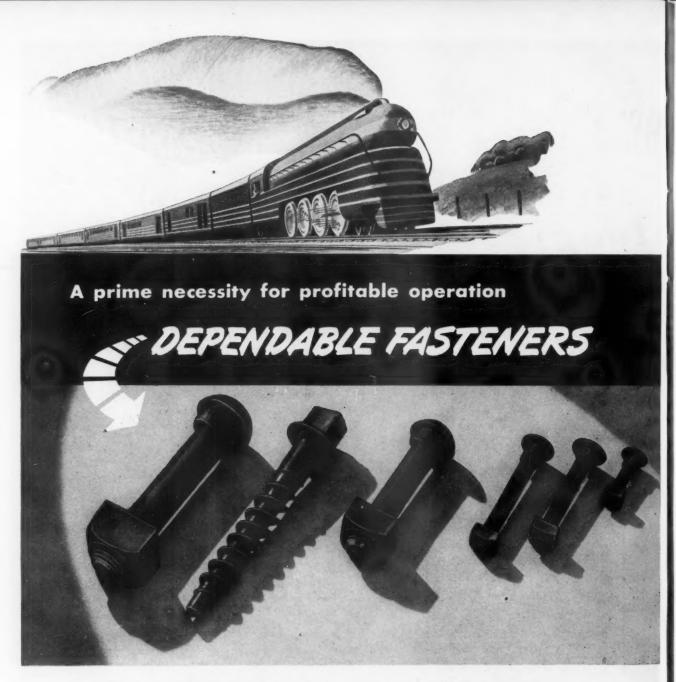
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Here is your TOP VALUE in quality mirrors—for handbag or boudoir, automobiles, public carriers, gift boxes, shaving sets, picture frames, wall mirrors, furniture, etc. Resilvering is eliminated, as SAFETEE MIRRORS are permanently sealed and the image remains sharp and brilliant.

Full particulars on sizes and prices sent promptly on request.

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PHILADELPHIA 44, PA.



From two standpoints, OLIVER Railroad Fasteners are a profitable specification for you. Being accurately made and cleanly threaded, they assemble faster, thus speeding shop and track construction and maintenance. Designed and made with full understanding of the requirements of railroad service, they last longer and hold tighter, thus reducing

maintenance and replacement costs.

Profitable operation results from the perfection of important details of fast-eners. Oliver is familiar with such details and your need for dependable high quality track bolts, screw spikes, car and locomotive builders' bolts, rivets and other fasteners, and offers products that fulfill your requirements.

OLIVER

SOUTH TENTH AND MURIEL STS.

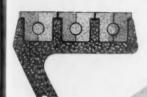
IRON & STEEL CORPORATION

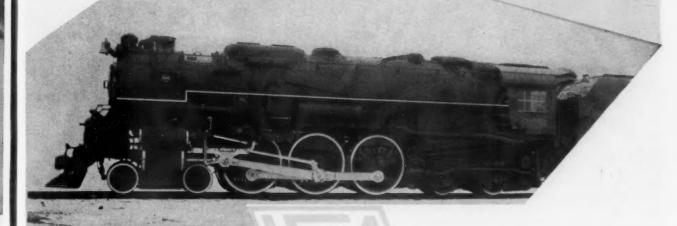
PITTSBURGH 3, PENNA.

BETTER Locomotive PERFORMANCE

for longer periods







decrease in piston weight are best realized with LFM Light Weight Alloy Steel Pistons and Universal Sectional Bull and Packing Rings. Improvement in counter-balancing, which results in better locomotive performance and less track strain, is the principal factor recommending their application. Additional dividends include longer wear for all cylinder components.

RENEFITS accruing from a 50 per cent

LOCOMOTIVE FINISHED MATERIAL CO.

Atchison, Kansas

New York City Chicago, Ill.

LFM engineering and shop facilities will prove valuable in helping your mechanical department realize full advantages from the application of these improved pistons. And that holds true also for the many kinds of castings, forgings, and machined parts produced in our Atchison plant where service to railroads always comes first.



The efficiency of tomorrow's production will be influenced by the handling capacity of freight elevators.

The smooth dependable performance of OTIS Freight Elevators is an assurance of more tonnage hauled . . . more time saved.

OTIS Freight Elevators can be arranged for dispatching to predetermined floors — to fit exactly the requirements of any cycle of operations.

Ask your OTIS representative about

Collective Control for high-speed freight elevators and Double Button Control for moderate-speed freight elevators.

For the finest in vertical transportation tomorrow, call your OTIS representative today.





CONVENTIONAL FULL ON-FULL OFF CONTROL

Only Honeywell Offers "FULL MODULATION"

DIESEL ENGINE SHUTTER CONTROL

Full modulation control means accurate and positive positioning of the diesel engine radiator shutters. It means that only enough air is permitted to pass through the radiators to maintain engine cooling water and oil temperatures at exactly the degree required, regardless of outside temperature, speed or load conditions.

Contrast full modulation control to the conventional "off-on" system, which means periodic delivery of cooling air with an alternately hot and cold engine cooling water condition, which obviously cannot be as efficient as constant proper temperature.

The modulating feature of the Honeywell Shut-

ter Control System makes possible not only full modulation of the shutters, but also permits step or sequence control of shutters and fan operation. Honeywell full modulation control is fully automatic. It is simple, safe and foolproof, as evidenced by hundreds of thousands of miles of actual service on freight and passenger runs from coast to coast and from Canada to the Gulf, under all types of varying weather and load conditions.

If you are not already familiar with the Honeywell full modulation diesel engine shutter control system, write Minneapolis-Honeywell Regulator Company, Railway Controls Division, 435 East Erie Street, Chicago 11, Illinois.



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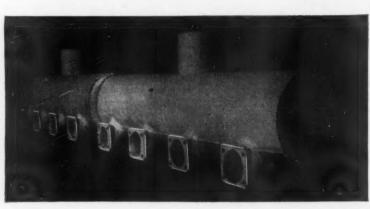


MAXIM Silencers make the

operation of powerful Diesels so quiet that engine exhaust is hardly heard above the rumble of the wheels. Where yards and right of way lie within city limits close to business and residential sections, quiet operation is a vitally necessary part of good public relations. Diesel trains slip in and out of stations quietly . . . freight is constantly moved in yards . . . with a new quietness that comes from properly silenced Diesel power. There's a further use of Maxim Silencers worth investigation in railroad operation . . .

because now Maxim makes Heat Recovery Silencers that not only provide effective silencing but also produce steam or hot water for heating

Heat Recovery Silencer Bulletin WH-101 contains information you should have. May we send you a copy?





The silencers illustrated are Maxim Exhaust Manifold Silencers. They replace the conventional exhaust manifold and thus combine effective silencing with space saving. Standard Maxim Silencers are also widely used in locomotives and are often equipped with the Maxim Spark Arrestor for use in fire hazard areas such as refineries, ordnance plants, etc.

THE MAXIM SILENCER COMPANY . 65 HOMESTEAD AVE., HARTFORD, CONN.





FOR 50 YEARS A LEADER IN INDUSTRIAL STORAGE BATTERY DEVELOPMENT

Tune in The Radio Hall of Fame, with Paul Whiteman and His Orchestra. Sundays, 6 P. M., EST; The Breakfast Club with Don McNeill, 9:45 A. M., EST, Monday through Friday - ABC (Blue) Network (Coast to Coast). MODERN ELECTRIC INDUSTRIAL TRUCKS POWERED BY COST-

Now you can get the kind of industrial trucks war experience proved the safest, most flexible and maintenance-free - ELECTRIC TRUCKS! And you can power your trucks with the greatest materials handling development since the fork-lift truck, itself-PHILCO "THIRTY", the Storage Battery with 30% longer life! Plan now for the big demands peace-time production will place on your materials handling equipment. Philco "Thirty" will give your trucks top capacity, plus savings in maintenance, depreciation and replacements. Write today for new catalogs giving specifications.

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Truck Storage Battery gives 30% longer life and is identified

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RESEARCH AIR FILTERS

Research self-sealing edge prevents by-pass of air around filter—all air must pass through the unit.

Research Filters hold more dust than ordinary ones. They give 99% pollen-pure air.

Particles are not blown off the filter by air passing through it. Vibration does not settle or pack the filter.

After thorough tests, big-name roads the country over choose Research Air Filters on performance. These filters stand up under terrific blasts of extremely hot and cold outside air; sharp cutting desert sand, bits of rock, dust and dirt. They do a better job of cleaning outside and recirculated air — the year round — in all climates.

They're Re-Fil-Able

These filters are Re-Fil-Able. When their dust-holding capacity is finally reached, the filter pad is replaced with a new one. The wire grids are permanent equipment used over and over.

Get the Most from Your Air-Conditioning Equipment
Railroad Representative

STANDARD CAR SALES, INC.

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Notes on STEEL CASTINGS

THE UNUSUAL JOBS—

LIKE SHIP STERN FRAMES

—We take them in stride

The stern frame and rudder trunk illustrated above, one of the many different types of ship castings produced by PSF, is definitely complicated in shape and section—a touchy and difficult job to cast successfully. It takes skill, experience, and advanced methods and facilities to reduce such castings to the level of routine, but that's what PSF is equipped and accustomed to do. Here's the point to keep in mind: PSF's demonstrated ability to handle the unusual jobs is extra assurance for you on any steel casting requirement... carbon or alloy steels, up to fifty tons.



47 YEARS OF STEEL CASTING KNOWLEDGE

Pittsburgh

STEEL FOUNDRY CORPORATION

GLASSPORT, PA.

Pittsburgh Spring and Steel Division, Pittsburgh, Pa.

Soles Offices: NEW YORK . PHILADELPHIA . CHICAGO . CLEVELAND . CINCINNATI . AKRON . WASHINGTON . ST. PAUL . SAN FRANCISCO

94 to 97.7 percent AVAILABILITY

A VAILABILITY of the Whitcomb 44-ton diesel electric locomotive ranges between 94 to 97.7 percent. These powerful, economical switching locomotives are always on the go switching and spotting cars on branch and spur tracks in terminals, yards, ordnance depots, steel mills, cement mills—or, in other words, handling any possible job from light switching to transfer runs of several miles.

Designed and engineered by craftsmen thoroughly acquainted with railway supply and maintenance problems, Whitcomb locomotives are ruggedly constructed and have easy access for inspection and maintenance.

Today, when schedules demand fast switching of freight and passenger cars, Whitcomb engines can be counted on 168 hours a week.

The complete Whitcomb line includes:

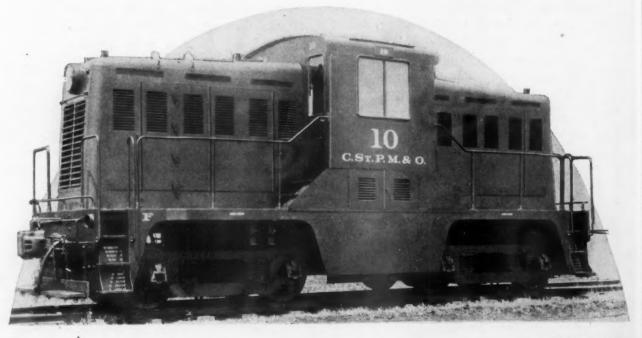
Diesel and Gasoline Locomotives: mechanical or hydraulic transmission locomotives weighing up to 40 tons, electrical transmission up to 80 tons.

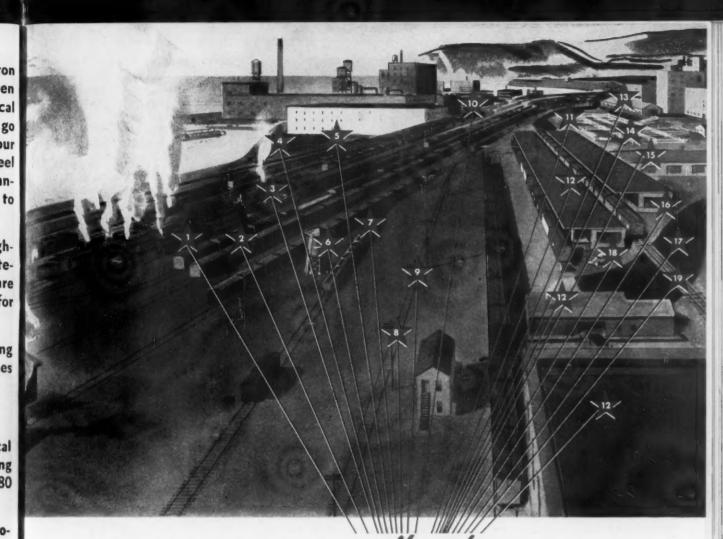
Electric Locomotives: storage battery locomotives 13/4 tons to 12 tons in weight.



THE WHITCOMB LOCOMOTIVE CO.

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- Coal Tar Pitch Roofing Specifications

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City.....State....

Buy Victory Bonds . . . and Keep Them!

How to control air quality in passenger cars

Many railroads are now achieving satisfactory air quality with activated carbon equipment that removes odorous elements which make air stuffy and stale.

No increase in equipment space requirements

Since all ventilation is essentially the dilution of stale and odorous air, fresh air for that purpose can be obtained by purifying already conditioned recirculated air with Dorex activated carbon G Panels, instead of drawing in and conditioning large volumes of outdoor air.

Problem: Power, weight and space limitations of cooling, heating and air circulating apparatus have leveled the air design for the average railroad car, with an occupancy up to 80 passengers, to between 2000 and 2400 cubic feet per minute total air delivery, out of which 25% or 500 to 600 c.f.m. is outdoor air make-up. The balance is recirculated. That means that less than 10 c.f.m. (usually nearer 71/2 c.f.m.) of fresh air per occupant is provided while standards of good ventilation require a minimum of 20 c.f.m. per passenger to maintain desirable air quality. In dining and tavern cars the ventilation demand may reach 30 c.f.m. per passenger, and the present trend toward universal smoking may make the 20 c.f.m. mandatory.

However, space limitations for equipment have prevented any attempt to meet proper ventilation demand with outdoor air, and control of air quality has been sacrificed in order to obtain control of temperature.

Solution: Dorex Type G Equipment has already proved its effectiveness in converting contaminated air to fresh ventilating air in railroad practice. It has been successfully applied to conditioning units serving railroad coaches, sleepers, lounge cars and dining cars. And Dorex Equipment has been specified in a majority of the new cars of all types currently on order. For example, in a car such as that mentioned above, with 600 c.f.m. outdoor air and 1800 c.f.m. recirculated, 50% or 900 c.f.m. of recirculated air is converted to fresh air and added to the 600 c.f.m. of outdoor air. Thus a total of 1500 c.f.m. of fresh air is provided, which, with an occupancy of 65 persons, is over 20 c.f.m. of fresh, ventilation air

per passenger. This percentage can be raised or lowered to meet specific car conditions.

Works like a gas mask



Nothing is added to the air—odors are removed, not disguised.

Used, recirculated air passed through the special gas-adsorb-

ing carbon used in Dorex Equipment emerges purer by far than the outdoor air of inhabited communities. Activated carbon is the most powerful adsorption material known. It has been used for many years in industry for the extraction of chemicals in gaseous and vaporous form from air. Thousands of current applications demonstrate its ability to adsorb the air-borne odor vapors that make air stale and objectionable in railroad cars. Impurities from occupants and their habits and from liquor and food in preparation can be extracted from the air by adsorption.

Dorex saves equipment, fuel and power

By purifying air that has already been heated or cooled, the load on heating, cooling and humidifying equipment is reduced or the capacity of the unit expanded.

Thus, railroads have found it economical and feasible to step up passenger comfort by controlling air quality.

Dorex Equipment is easy to install and maintain

The Type G Panels consist of sturdy, light-weight metal frames forming panels, each housing a battery of exposed perforated tubes which contain the granular activated carbon. The face area of the panels does not exceed that of standard air filters, and they are not over 234" thick. They can usually



DOREX TYPE G Panels be located between the air filter and the coils without imposing any alterations in equipment arrangement or undue resistance to air flow.

Proof of healthful, satisfactory air quality

Dorex adsorbing equipment has been adopted as standard for Army Hospital cars. After exhaustive tests by the government on all available methods, activated carbon was designated as the only one to be used to control unusual concentration of air-borne odors and impurities generated in confined spaces.

WELL KNOWN TUCO PRODUCTS

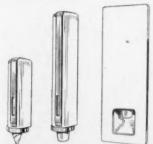
Tucolith Composition Flooring
Tuco Treated Canvas Tuco Rockwool Insulation
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"a health safeguard for passengers... DIXIE CUPS" modern as tomorrow...



A fresh, clean cup - a Dixie Cup or a Vortex Cup - the appreciated personal touch in modern passenger service. Dixie offers the car designer a choice of installations, a choice of cups, both flat-bottom and cone. Various wall and recessed dispensers are available to blend with car design. Complete service, too, for mobile and station lunch counters, fountains. May we consult with you? Address: Railway Division, Dixie Cup Co., Easton, Pa.

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November 17, 1945

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America's first gear-driven steam turbine locomotive, built by Baldwin with turbines and gears by Westinghouse.

Four-cylinder Duplex locomotive, offering improved performance at all speeds with outstanding advantages at high speeds.



There is nothing static about locomotive design and construction.

This is assured by the research programs of the railroads and the The new and improved locomotives now coming from the Baldwin shops are tangible evidence of this constant progress in locomotive builders.

the locomotive art—leading to higher efficiencies, greater availability, and lower operating and maintenance costs. Our engineering staff will welcome the opportunity to study

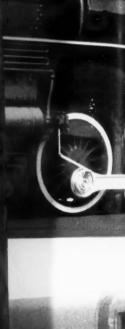
your motive power problems and advise you how these new loco. motive types may be of service. The Baldwin Locomotive Works, Locomotive and Ordnance Division, Philadelphia, Pa. Offices: Philadelphia, New York, Chicago, Washington, Boston, Cleveland,

Detroit, St. Louis, San Francisco, Houston, Pittsburgh.

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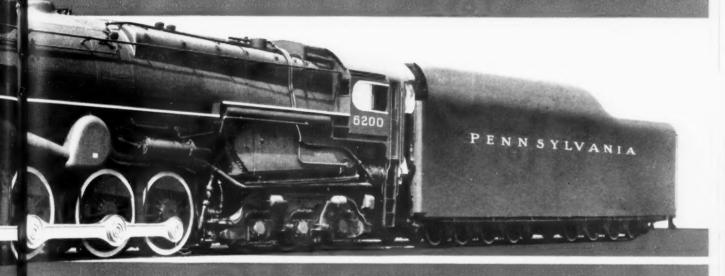
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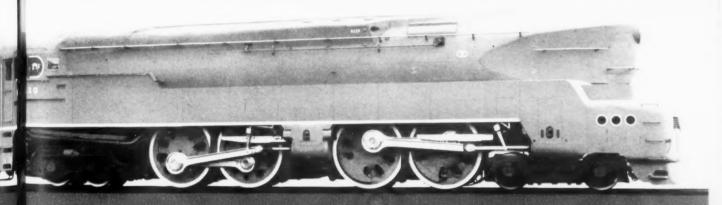
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PASSENGER LOCOMOTIVES





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LOCOMOTIVES

Baldwin Products For The Railroads — Steam, diesel-electric and electric locomatives, Diesel engines, Hydraulic presses, Special railroad shop equipment, Testing machines and instruments, Steel tires and rolled steel wheels, Crane wheels, Connecting rads and other steel forgings, Steel castings, Springs, Metal plate fabrication, Boilers, Non-Jerrous castings, Bending rolls, Plate planers, Dynamometer cars.





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WHAT Johns-Manville Stonefelt actually does is wrap your passenger cars in strong, lightweight blankets that resist heat transmission and muffle sound!

These blankets, easily applied to the structure, were developed in the J-M Research Laboratory exclusively for passenger car insulation. They are made of interwoven, specially treated mineral fibers, very small in diameter. The quality of the fibers and method of felting provide resiliency and strength; Stonefelt retains its rated thickness and won't settle even under severe vibration.

Stonefelt is fire- and moisture-resistant... covered on both sides with a layer of reinforced asbestos paper, flame-proofed muslin or a combination of both, depending on the service requirements.

Call on J-M Insulation Engineers to learn

how easily and economically you can obtain comfort and quiet in your passenger cars. Johns-Manville, New York, Chicago, Cleveland, St. Louis, San Francisco.

Johns-Manville STONEFELT* offers these advantages:

High acoustical efficiency Low thermal conductivity Light weight Resilience Fire-resistance Easy application Strength Durability *Reg. U. S. Pat. Off.

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LIKE RUBBER HEELS PEERLESS H-I-B DRAFT GEARS ABSORB THE SHOCK

Improved freight car operation is a certainty with the use of PEERLESS H-1-B DRAFT GEARS. The reason for this is that Peerless Draft Gears are engineered and designed to provide—

- 1. High Absorption
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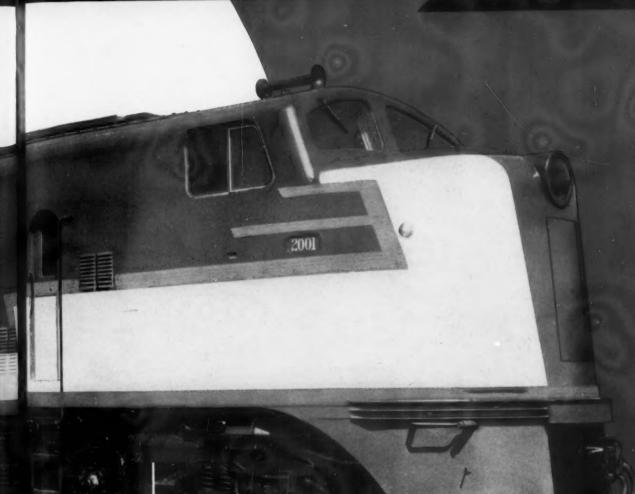
SEE FESTALS FOR

Baldwin-Westinghouse diesel-electric locomotives are taking their place alongside Baldwin steam power in high-speed passenger service.

Capacities range from 1000-hp. and 1500-hp. locomotives for branch line service, up to 2000-hp. and 3000-hp. units which can be combined to form a locomotive of any desired horsepower.



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The Optimum Performance of Train Communication Equipment Requires SPECIAL POWER SOURCES

Variations in line voltage from low battery to maximum charging voltage are too wide to permit satisfactory operation of communication devices.

Some form of conversion equipment with controlled voltage and frequency must be employed.

SAFETY power units are now available to meet all requirements of this special service.

For A-C operation we offer power units with inherent voltage and frequency control plus filtering on both motor and generator sides to maintain radio noise level below 5 microvolts from 150 kilocycles to 170 megacycles.

For D-C operation we offer single voltage or dual voltage power units with the same inherent controlled voltage characteristics.

Manufacturers of communication apparatus, using SAFETY power units will insure their guarantee of product performance.

Railroad operating personnel can be assured of uninterrupted operation with power units having close voltage and frequency regulation, low radio noise level and minimum maintenance all in one self-contained rugged unit.

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THE SAFETY CAR HEATING AND LIGHTING COMPANY, Inc.

New York, Chicago, Philadelphia, St. Louis, Boston, San Francisco, Montreal

FOR car axles that will stand up under the strain of high speeds and heavy loads, it will pay you to remember Standard Forgings Corporation.

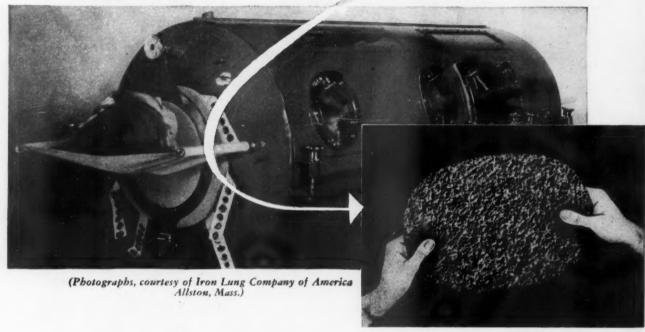
Car, Locomotive Tender and Locomotive Axles furnished to all specifications.

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General Offices: RAILWAY EXCHANGE BLDG., CHICAGO 4, ILL.

Air Fight Seal... for a breath of fresh air,



N numbers large enough to people a fair sized city, near-victims of gas, carbon monoxide and drug poisoning, electric shock, drowning and suffocation, as well as thousands stricken with dread polio, owe their lives to the "Iron Lung" – the remarkable respirator that breathes for the person who cannot breathe for himself.

OPERATION of the iron lung belies its cumbersome appearance. It is sure, silent and mobile as a thing alive. Every device to insure dependable, life-giving performance has been worked out to perfection; every refinement reflects meticulous concern for the patient's comfort and safety.

EXAMPLE: The adjustable collar which fits gently about the patient's neck to form a positive,

air pressure seal, is made of elastic, fleecy-soft Sponge Rubber. So are the tough, enduring gaskets which seal port and bedpan openings against all possibility of dangerous pressure leakage!

No doubt your sealing problem is "different". Most of them are. All the more need, then, for versatile cellular rubber in one of its many forms. Cellular rubber can be cut or molded to the shape you need to improve your product by cushioning, sealing, silencing, gasketing, absorbing shock and vibration. Want proof? Just show us your design or model, and ask for samples and prices. Sponge Rubber Products Co., 121 Derby Place, Shelton, Conn. Sale Offices: New York, Chicago, Washington, Detroit,

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For many years Flintkote Protective Coatings have helped railroads defeat the twin enemies of their structures... abrasion and corrosion.

These asphalt compounds "plate" steel and concrete with a tough, long-wearing armor—highly resistant to flying cinders, moisture and fumes... add "extra years" of life to everything they protect.

On bridges, towers, walls ... in round-houses, train sheds, tunnels ... and on gondolas, box cars, tank cars ... Flint-

kote Protective Coatings and Car Cements are quickly, easily applied with spray or brush.

For over 40 years The Flintkote Company has served the railroads of the country with highest-quality Asphalt Protective Coatings, Adhesives, Car Cements, Mastic Floorings, Stock Car Floorings, Insulation Coatings and Building Materials...

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Whatever your industry, from building railroad cars to refrigerators, from buses to airplanes, automobiles, or cold storage rooms, bring your sealing requirements to

Presstite — "Sealing Headquarters." Enlarged research, laboratory, and production facilities are at your service. Let us recommend or develop the best sealing compound for your particular use. Write today.

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Technical Literature. Copies will be supplied promptly on request.

In addition, our metallurgical staff, working in close cooperation with both the railroads and equipment builders, stands ready to show you how alloy steels do the job better in modern car as well as

locomotive construction.

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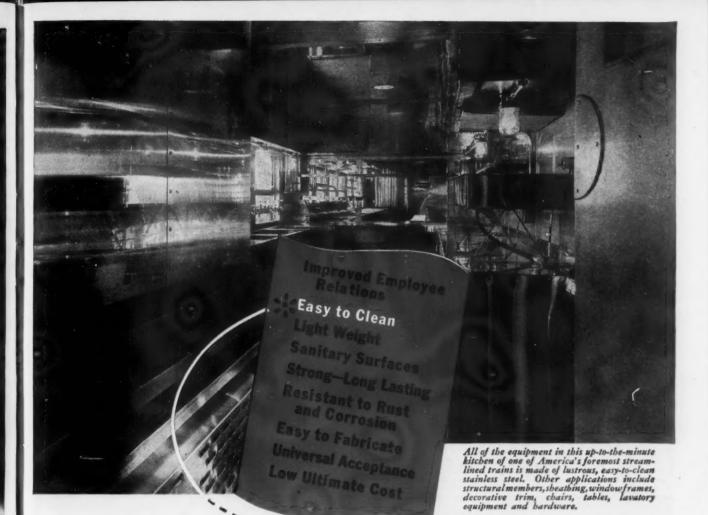
JOSEPH B. ENNIS, Senior Vice President, AMERICAN LOCOMOTIVE COMPANY

THOUT our great arteries, the railroads, American war efforts surely would have been paralyzed. As this will also be true of a peacetime economy, American Locomotive is constantly searching for new and better ways to serve the railroads and industry. The Wall Street Dournal with its incompar-

able daily reporting of industrial and business news, has been our divining rod — it is 'must' reading in our organization!"

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Induro Pays in many ways

Republic ENDURO Stainless Steel—the metal that's clean and as easy to keep clean as glass—is the ideal material for railroad dining car kitchen and pantry equipment.

A simple flushing with warm water followed by wiping usually restores ENDURO's sparkling, sanitary surface in a hurry. Greasy or sticky substances are easily, quickly and safely removed with ordinary soap and water or standard cleaning compounds.

No need to worry, either, about wearing away

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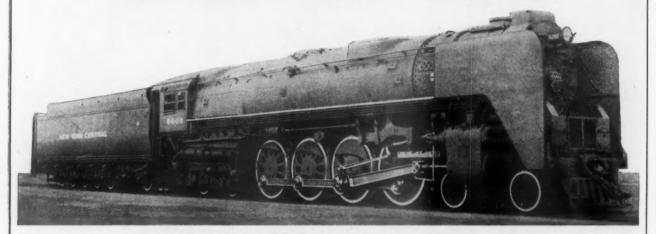
BAKER VALVE GEAR

WITH

NEEDLE BEARINGS

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NEW YORK CENTRAL NIAGARA



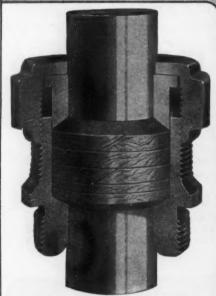
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Engineered to Give Long Uninterrupted Service on Westinghouse and New York Locomotive Air Compressors

The true merit of Durametallic is established by its continued use for many years on thousands of locomotives on American railroads. Durametallic construction provides long service. Actual service records show from 75% to 90% reduction in worn rod replacements.

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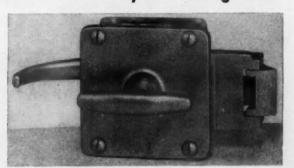
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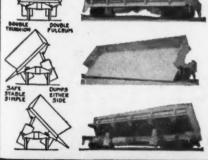
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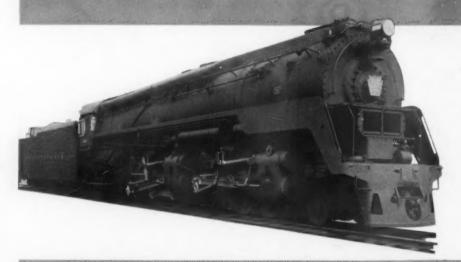
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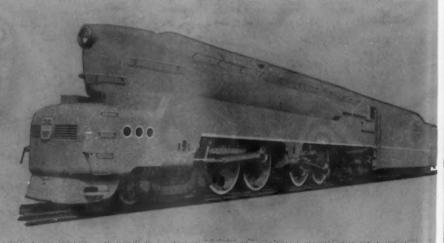
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